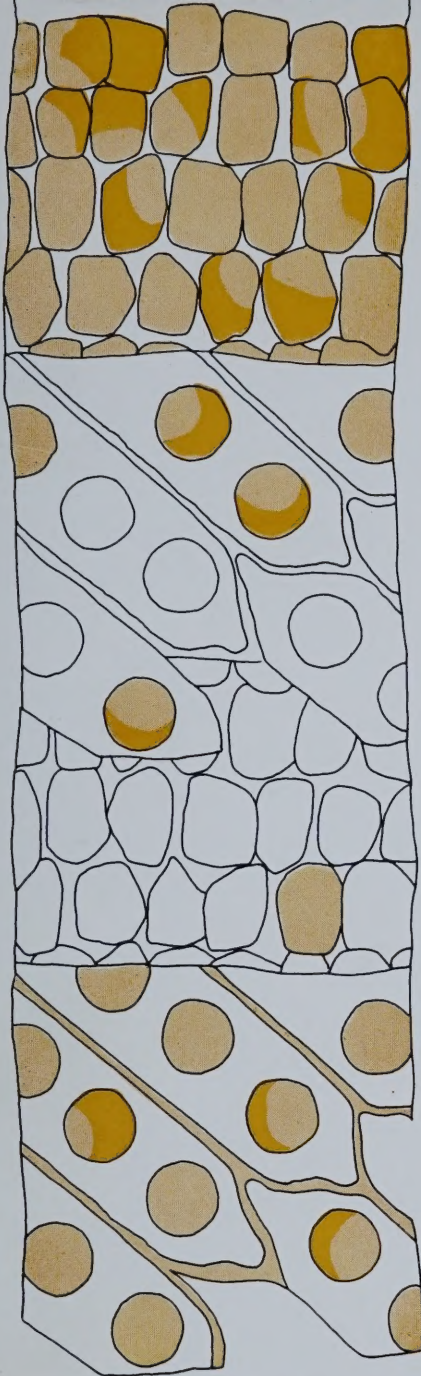




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The Literature of Arthropods Associated With Soybean

V. A Bibliography of *Heliothis zea* (Boddie)
and *H. virescens* (F.) (Lepidoptera: Noctuidae)

J. Kogan, D.K. Sell, R.E. Stinner, J.R. Bradley, Jr., M. Kogan



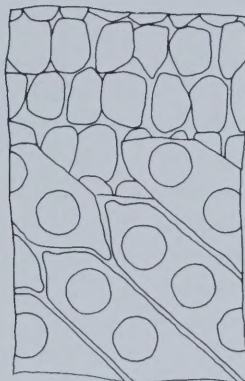
International Soybean Program

INTSOY

Series Number 17

The Literature of Arthropods Associated With Soybean

**V. A Bibliography of *Heliothis zea* (Boddie)
and *H. virescens* (F.) (Lepidoptera: Noctuidae)**



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North Carolina State University at Raleigh

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Foreword

One of the most serious impediments to the efficient spread of technological information is the speed with which new knowledge accumulates and the rather unordered fashion of the accumulation. The publication of a bibliography on a special subject serves the highly desirable purpose of organizing and presenting under one cover a key to the information available on that subject. This service is appreciated as a time saver by workers who have access to libraries well supplied with reference and abstracting journals. It is a priceless tool for the many researchers and other users isolated in small experiment stations, colleges, or agencies in remote parts of the world.

By publishing the bibliography of *Heliothis zea* and *H. virescens*, the International Soybean Program (INTSOY) of the University of Illinois, the Illinois Natural History Survey, and the North Carolina State University at Raleigh have made available to those concerned with crop protection one of the most impressive bodies of information on a complex of agricultural insect pests anywhere in the world. This complex has been considered the number one agricultural insect problem in the United States and in many countries in Central America and South America. This pest complex has been responsible for the economic debacle of cotton production in certain regions. In such regions, soybean has often replaced cotton, only to be in turn exposed to devastating populations.

Because of the similarity of *H. armigera*, the principles of control and the basic ecological, physiological, and behavioral information on *H. zea* and *H. virescens* are of interest also in regions of the Old World and the Orient where *H. armigera* is prevalent.

The history of *H. zea* and *H. virescens* on cotton, corn, and other crops recorded in papers in this bibliography is a powerful statement of the risks of intemperate use of insecticides and disregard for basic ecological principles. The papers in the bibliography also depict the successful use of plant resistance and of biological and integrated control techniques; they also herald the advent of the pest management era. As soybean expands into regions of greater risk from *Heliothis*, it is important to learn from history how to avoid the mistakes and how to benefit from the successes.

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Preparation and publication of this bibliography was made possible by the United States Agency for International Development through its support to INTSOY under contract AID/TA/C-1294 and 211 (d) grant AID/CM-ta-g-73-49; the Section of Economic Entomology, Illinois Natural History Survey; the Office of Agricultural Entomology, Illinois Agricultural Experiment Station, University of Illinois at Urbana-Champaign; the North Carolina Agricultural Research Service, North Carolina State University at Raleigh; the National Science Foundation through grants GB-28855 and GB-382271X to the Department of Entomology, North Carolina State University at Raleigh; the U.S. Department of Agriculture through regional project S-74; and the U.S. Environmental Protection Agency and National Science Foundation through grant GB-37418 to the University of California (soybean sub-project) subcontracted to the University of Illinois. The opinions expressed in this publication are those of the authors and not necessarily those of the funding agencies or supporting institutions.

The authors are indebted to the personnel of the interlibrary loan services of the University of Illinois Library and of the D. H. Hill Library, North Carolina State University, for processing more than 800 requests.

We are also indebted to Dr. Hilary Burton, U.S. Department of Agriculture, Science and Research Administration, Technical Information Services, for running the *Heliothis* profile in the division's current awareness literature services. We gratefully acknowledge the participation of Ms. Barbara Ford, now with the University of Illinois Library, Chicago Circle campus, who was the SIRIC librarian during the early part of this project.

Several graduate students of the University of Illinois Graduate School of Library Science helped search for obscure citations and performed many tedious tasks essential for the completion of this bibliography. The computer specialists were Ms. Celia Shih, and Ms. Kyungsook Lee with the Illinois Natural History Survey and Ms. Cathy Tuttle at North Carolina State University. Mr. Dan Kogan wrote the program for the index, and Ms. Sandra McGary typed all forms used for input to the tapes. We are greatly indebted to these persons for their competent assistance.

Finally, we wish to express our deepest gratitude to Mr. Adrian Janes, retired head of the Office of Publications in the University of Illinois College of Agriculture, who accepted the task of editing this bibliography. We humbly dedicate this work to Mr. Janes.

Introduction

The genus *Heliothis* Ochsenheimer probably contains the single most important insect complex in the world, from the standpoint of potential crop loss. The noctuid pest species in this complex exhibit wide host ranges (from citrus to tobacco), high fecundity, and great vagility. In the United States, two species, *Heliothis zea* (Boddie) and *Heliothis virescens* (Fabricius) (Figure 1), are serious pests of many agriculturally important crops. Both species occur over most of North America, Central America, and South America (Figure 2). As of this date, *Heliothis zea* and *H. virescens* appear to be restricted to the New World. One or both species can cause economic loss to soybean, cotton, tobacco, field and sweet corn, tomato, sorghum, peanut, and many minor crops.

The polyphagous nature of these species, whose hosts also include many uncultivated species such as many clovers, vetch, evening primrose, and a variety of other legume species, has made it difficult to predict their potential infestation sites.

They feed on leaves and fruit of host plants, preferring the fruit. In both corn and cotton, the larvae have been implicated in the mechanical transmission of various

fungal and bacterial rots in addition to causing direct damage by feeding. Under moist conditions these rots add greatly to the losses caused by feeding.

In silking corn the larvae first feed on the silks, moving down the silk channel to the kernels. The larger larvae then feed heavily on the maturing kernels, generally at the distal end of the ear (Figure 3). In fruiting cotton, young larvae are usually found on the squares, flowers, and small bolls; large larvae can be found on all fruiting forms except mature bolls (Figure 4).

H. zea is considered the major insect pest of soybean in most southern states and is capable of completely destroying the pod (Figure 5). In severe infestations the larvae, after destroying the pods, proceed to strip the leaves, leaving a field of stems.

Taxonomy

The scientific name of these species has changed over the years, at times causing considerable confusion. Several authors have recently reviewed the genus *Heliothis* and offered extensive synonymic lists (see "Systematics, Taxonomy, Nomenclature" in the index).

Heliothis zea (Boddie) has been described or mentioned in the literature as *Bombyx obsoleta* F., *Phalaena zea* Boddie, *Heliothis umbrosus* Grote, and *Heliothis armigera* [form] *ochracea* Cockerell. Several combinations of these names are also found under the genera *Chloridea* and *Noctua*. Perhaps the most confusing aspect of this synonymy is the use of *H. armigera* for this Nearctic and Neotropical species. *H. armigera* is limited in distribution to the Palearctic and Oriental regions of the world.

H. virescens (Fab.) has been described also as *Noctua virescens* F., *Phalaena rhexia* Smith, *Xanthia prasina* Walker, *X. pyraloides* Walker, *X. viridescens* Walker, and *Heliothis spectanda* Strecker, and placed in the genera *Aspila*, *Chloridea*, *Noctua*, and *Phalaena* by various authors (see Todd, 1978, citation number 4497).

In recent years the argument about the generic position of *H. zea* has been raised again with the creation of the genus *Helicoverpa* (Hardwick, 1965, citation number 2013). We decided, however, to follow the position adopted by most contemporary *H. zea* researchers, who prefer to keep *zea* in the genus *Heliothis* (Todd, 1978, citation number 4497).

Life History

Although both species may have continuous generations in southern Florida, in most areas pupal diapause is

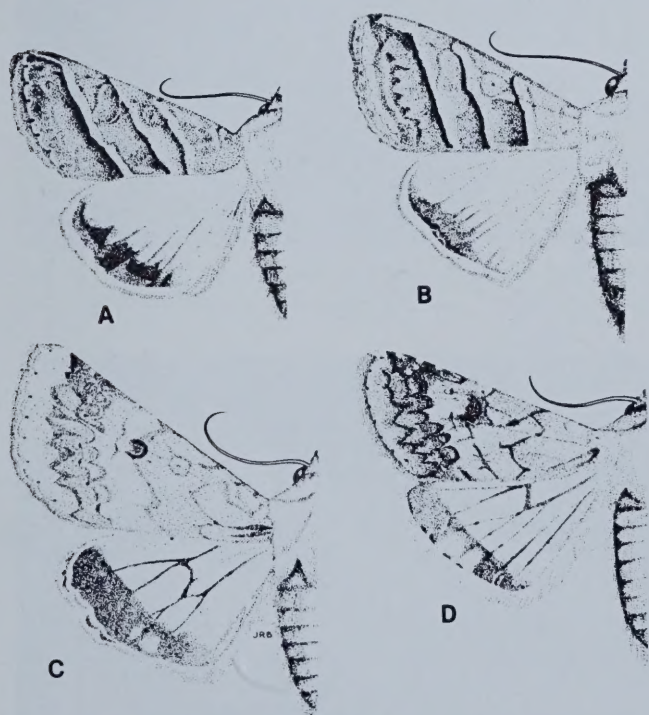


Fig. 1. Dorsal views of (A) *Heliothis virescens* female moth, (B) *H. virescens* male moth, (C) *H. zea* female moth, (D) *H. zea* male moth. (From Neunzig, 1969, reference number 3330.)

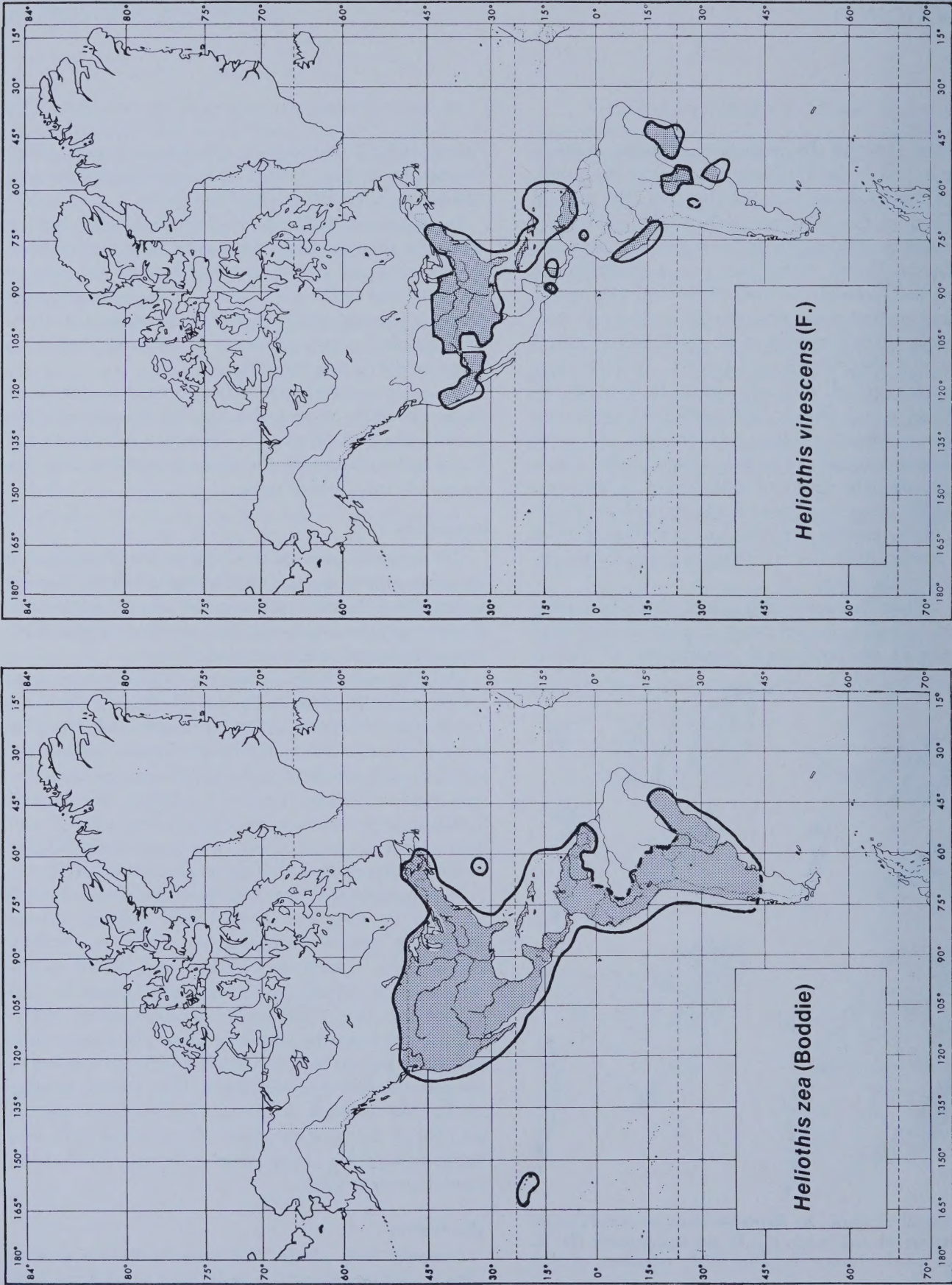


Fig. 2. Distribution of *Heliothis zea* and *H. virescens* in the western hemisphere. (Redrawn by permission from Commonwealth Institute of Entomology, 1967, reference numbers 1014 and 1015.)



Fig. 3. *Heliothis zea* on corn silk.

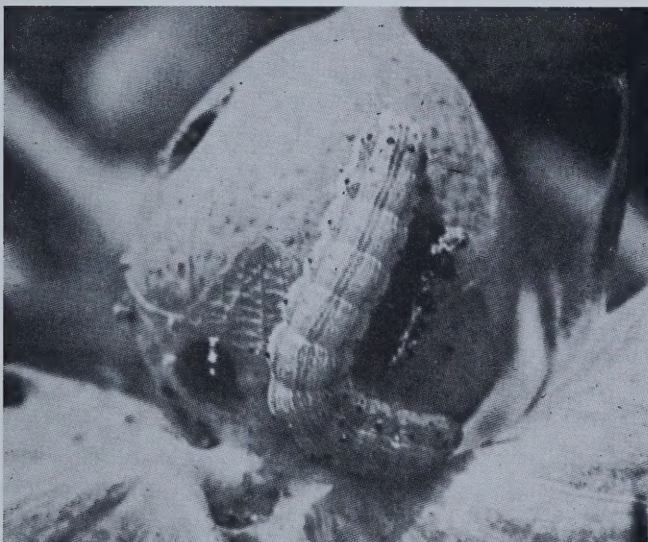


Fig. 4. *Heliothis zea* on cotton. (From Watson, 1964, reference number 4783.)



Fig. 5. *Heliothis zea* on soybean.

found. Each adult female that emerges in the spring lays up to 3,000 eggs on wild hosts, corn, and tobacco. The actual date of emergence in the spring varies from year to year and from north (early May) to south (early March). Although successful overwintering of diapausing pupae of both species seems limited to regions in which the soil frost line is above 5 to 10 centimeters, the high vagility of adult moths permits invasion of sweet corn in southern Canada by midsummer.

Eggs are laid singly and hatch in 3 to 10 days, depending on the temperature. There are 5 or 6 larval instars (7 have been infrequently reported). The prepupa leaves the plant and burrows into the soil, forming a J-shaped tunnel and pupal cell. Eight to twelve days after pupation the adult emerges from the tunnel. Generation time averages three to four weeks during the summer, with a preoviposition period of two to five days.

The combination of high mobility and fecundity (with host selection closely tied to crop phenology and plant growth characteristics) can lead to "overnight" explosions of the pest in individual fields.

The ability of *H. virescens* in particular to develop resistance to a broad range of pesticides has further enhanced its pest status to the point that the total loss of cotton production in parts of northern Mexico has been attributed to the destruction by this species. In other areas, cotton production systems had to be drastically changed to reduce the destructive potential of the tobacco budworm as pesticides became ineffective.

All of these characteristics lead to the conclusion that these two species are close to the perfect "r" strategists. However, both species are also somewhat cannibalistic, with *H. zea* much more so than *H. virescens*, perhaps because *H. zea* may have evolved on the limited food supply provided by the small grain "ears" of maize ancestors in Central America or South America.

Feeding, Nutrition, and Physiology

A great many empirical nutritional studies have been conducted with *H. zea* and *H. virescens*, comparing different hosts and host maturity states as well as the effects of animal protein derived through cannibalism. Large differences in developmental times and survival have been observed among the various hosts and among maturity states within a single host. Feeding on other larvae has no apparent nutritional benefit.

Both species have also been used in basic studies of infrared sensing and of microsomal and juvenile hormone activity.

Rearing

With the exception of stored-product insects, *H. zea* and *H. virescens* were among the first insects to be reared on artificial and semidefined synthetic media.

Small-scale rearing is usually accomplished in individual plastic cups (because of cannibalism), but mass-rearing techniques have been developed that use light grids to separate larvae. Most of the diets used are modifications of a pinto bean-agar base medium.

Sampling and Trapping

Two main techniques have been used for sampling these species — visual counts for all stages and adult trapping. For eggs and larvae, direct visual observation or suction sampling of either a certain length of plant row, individual plants, or fruiting forms has generally been used. For crops such as soybean, in which the amount of foliage makes observation difficult, beating the plants onto a cloth has been used successfully. A similar technique has been used for grain sorghum since the larvae are hidden in the grain heads. Egg counts in such crops are usually made at the plant terminals and indicate relative rather than absolute densities. Pupal sampling has proved quite difficult and has been accomplished by several means: soil sifting, soil scraping, and estimation of emergence of prepupae from fruiting forms. Soil sifting provides the most accurate data, but requires considerable time, thus reducing the number of samples. Soil scraping (removing the top 1.5 centimeters of soil) is much faster and allows the observer to count entrance tunnels to pupal chambers, but the technique can be used only in nonrocky soils in the absence of a large number of similar noctuids. Estimation of pupae based on prepupal emergence from the host has been used successfully for *H. zea* on corn; ears are collected and held over small areas of soil, which are later sifted.

Adults have been sampled by flushing (in cotton and soybean) and by using “sugar lines” — rows of the host plant sprayed with a sugar solution on which moths are counted as they are attracted to feed. The most common sampling technique has been the blacklight trap. Both *H. zea* and *H. virescens* are attracted to blacklights, but *H. virescens* much less so. *H. virescens* is, however, more strongly attracted to green fluorescent lights. A synthetic pheromone trap has recently been developed for *H. virescens* that will probably replace the blacklight trap as the major adult sampling tool. Because of the mobility of these adults, all of these techniques provide information on relative density only.

Natural Enemies

Both species share a number of important natural enemies, with only a few species of parasitoids specific to *H. zea* or *H. virescens*.

Numerous arthropod predators commonly attack both eggs and larvae, including representatives of the following genera: *Geocoris*, *Nabis*, *Orius*, *Chrysopa*, *Coleomegilla*, *Hippodamia*, and *Scymnus* and spiders of the

families Argiopidae, Oxyopidae, Salticidae, and Thomisidae. Ground-dwelling carabids, ants, and many bird species have been reported as predators of larvae on plants as well as of prepupae leaving the plants. Pupae have been reported subject to attack by voles and mice.

Egg parasitoids include several *Trichogramma* spp. (several of which have been used in inundative releases) and *Telenomus* sp. Common larval parasitoids are *Apanoteles marginiventris* (Cresson), *Microplitis croceipes* (Cresson), *Campoletis perdistinctus* (Viereck), and *Hyposoter exiguae* (Viereck). Parasitoids that attack late-instar larvae and emerge in the pupal stage can also cause high mortality; common species include *Chelonus texanus* (Cresson), *Archytas marmoratus* (Townsend), *Eucelatoria armigera* (Coquillett), and *Lespesia archipivora* (Riley).

Pathogens have also been reported for *H. zea* and *H. virescens* from various taxonomic categories. The viruses are represented by a cytoplasmic polyhedrosis, a granulosis, and a nuclear polyhedrosis, the latter having been experimentally used with mixed results for control of *Heliothis* on cotton. *Nomuraea rileyi* (Farlow) Sampson, representing the parasitic fungi, commonly decimates late-instar populations in soybean and cotton. Microsporidia also infect *Heliothis*, being maintained by transovarian transmission; two species are involved, *Vairimorpha necatrix* (Cramer) and *Nosema heliothidis* Lutz and Splendore. Finally, a nematode *Chromonema heliothidis* Khan, Brooks, and Hirshmann has been found parasitizing pupae, and the feasibility of its use as a biological control agent is being investigated.

Plant Resistance

The principle of host plant resistance was first applied against the corn earworm in corn, since that was the major crop affected by *Heliothis* species until recently. Corn cultivars possessing partial resistance to the corn earworm (the biophysical properties of tight husk and elongated silk canal) are widely planted today.

The conveniences of insect-pest control with insecticides resulted in the neglect of research on host plant resistance to *Heliothis* species from the mid-1940's until the mid-1960's. However, the increased awareness of environmental problems associated with typical pesticide programs of the past three decades has led to renewed interest in host plant resistance in recent years.

A concerted effort is now under way to locate sources of resistance in wild ancestors of modern crop plants and to transfer resistance factors (physical and chemical) into agronomically acceptable cultivars. Toxic chemicals in cotton, soybean, tomato, and corn (for example, gossypol and terpenoids in cotton) and alteration of plant structure in cotton (glabrous and nectariless) impart resistance to *Heliothis* species. The antibiotic and biophysical

mechanisms have been identified for some plants, and their effects on *Heliothis* quantified. When these insect-resistant genotypes are commercially available depends upon the time required for their agronomic improvement. Cotton cultivars resistant to *Heliothis* species through early fruit set and maturity (escape) are commercially available and are being planted over large areas, particularly in Texas.

Cultural Controls

Cultural manipulations are among man's most powerful tools for the management of *Heliothis* spp. on planted crops. Although for the past three decades this method has largely been neglected in favor of chemical control, cultural control is one of the oldest methods used by farmers to combat *Heliothis*. Planting strips of corn in cotton fields served as a cultural means of trapping *Heliothis* on corn to prevent boll loss on cotton during the early part of this century.

Recent advances in pest management and the increased problems of *Heliothis* control with insecticides have caused cultural controls to be reevaluated because they are compatible with other methods and are usually environmentally sound.

Any alteration of cultural practice in the production of a crop will affect organisms using that crop for shelter or as a source of food. Identifying those cultural manipulations that adversely affect pest populations is a basic step in pest management. For example, early planting of any crop is a mechanism for avoiding high late-season *Heliothis* populations, particularly if production inputs like fertilizer and chemicals are manipulated in favor of early crop maturity. Plant spacing within and between rows affects the attractiveness of plants to *Heliothis* and also influences survival of immature stages; for example, soybean fields with fully developed canopies rarely support damaging *Heliothis* populations.

Tillage has been shown to have a marked effect on the pupal stage, particularly of the overwintering generation. The overwintering generation is drastically reduced on tobacco by the cultural manipulations of stalk destruction and control of late-season growth (suckers).

Chemical Control

Prior to the 1940's and the development of chlorinated hydrocarbon insecticides, *Heliothis* species were minor pests except for the corn earworm on corn mainly because of the presence of natural control agents in other crops. Later, widespread use of insecticides to control other pests caused serious environmental disturbances by reducing the number of beneficial insect predators. This change together with the dramatic alterations in crop production systems has resulted in the *Heliothis* species now being considered as the most serious insect

pest complex in the United States and several other cotton-producing countries in North America, Central America, and South America.

Chemical control of both species is achieved on most crops with carbamate or organophosphate insecticides, and except for cotton, currently registered chemicals provide adequate control when recommended application techniques are followed. Control, particularly of *H. virescens*, is extremely difficult on cotton because the insects develop resistant strains, the larvae feed within the fruit, there is no natural control by predators and parasitoids, and current insecticide delivery systems (such as ULV systems) are inadequate. Consequently, none of the insecticides now registered will adequately control the *Heliothis* complex in cotton when the majority of the population is composed of the tobacco budworm. The newly developed synthetic pyrethroids and certain new organophosphates will control resistant tobacco budworms, but development of resistance to these chemicals by *Heliothis* species seems inevitable if current use patterns continue. The future of chemical control on cotton appears to require changes in the production systems that will result in less dependency upon insecticides for *Heliothis* management.

The balance between chemical and other methods of control on most crops is adequate at present, but stricter attention to stated damage thresholds would result in more efficient use of the insecticides.

Management Systems

Management of *Heliothis* species before the 1940's consisted largely of a common-sense approach of avoiding the problem when possible and living with it when necessary. Crops were planted at times and places least likely to sustain damage from *Heliothis*, and a certain amount of damage even to crops destined for the fresh market was tolerated. Furthermore, naturally occurring biological controls were allowed to progress toward the demise of *Heliothis* species with little interference by man.

From the late 1940's until recently, management of this insect complex was achieved primarily with insecticides supplemented by natural controls, particularly early in the growing season. As crop production goals moved increasingly toward maximum productivity, dependence upon insecticides increased and no longer were production systems designed with avoidance of the problem as the paramount goal. Many serious problems associated with sole reliance on insecticides for *Heliothis* control soon emerged, particularly on cotton, where insecticide use was heaviest. With the eventual realization and acceptance of the fact that a single tactic would not provide a permanently acceptable solution to the complex

task of *Heliothis* management, a renewed effort was made to develop ecologically sound alternatives. Much progress has been made recently as interest has emerged in optimum crop production systems that consider more than yield. With this change in philosophy, entomologists are beginning to share with crop scientists the architectural responsibilities for agroecosystems. The results so far are encouraging as more multifaceted management systems emerge in which chemical insecticides are considered as "fail-safe" tactics, to be used as the last resort whenever other tactics fail. Short-season cottons, early planting and heavier seeding rates for soybean, host resistance in field corn, and stalk destruction in tobacco, all combined with forecasting, scouting, and dynamic economic thresholds, hold much promise for the immediate future.

Management of *Heliothis* spp. in the southeast on soybean serves as an example of the present use of pest management principles. Modeling efforts suggested that within the agroecosystems in which field corn is a dominant crop, early-planted soybean (which usually develops a full canopy prebloom) is essentially immune to infestation by *Heliothis* except during hot, dry summers. (Soybean is, however, favored by certain other pest species such as the Mexican bean beetle and this must also be considered.) Late-planted soybean falls in a high-risk category, and these fields must be scouted from peak-bloom on. Where infestations are found, minimal amounts of recommended pesticides have effectively controlled the pest populations.

THE BIBLIOGRAPHY

Few insect species have been the object of more intense research activity than *H. zea* and *H. virescens*. This research activity, covering a period of nearly 200 years, has generated a rich literature of monographs, scientific papers, reports, extension notices, and popular articles scattered in more than 1,000 periodicals or other types of publications (see list of sources cited, beginning on page 215). The continued interest in these species is indicated by the annual rate of publication of new articles and papers, which exceeded 150 per year in the five-year period 1973-1977.

In 1974 the Illinois soybean entomology research team decided to concentrate the efforts of its SIRIC unit (Soybean Insect Research Information Center) on the compilation of this vast literature. A questionnaire mailed to most researchers currently publishing on *Heliothis* spp. brought a unanimous response in support of the project. Concurrently a similar computer-based searchable file using INFO 360 (Johns Hopkins University/Applied Physics Laboratory) had been initiated at North Carolina State University at Raleigh, and it was decided to com-

bine the efforts of both institutions in the preparation of this bibliography.

From 1975 to 1977, nearly 7,000 citations were compiled; the documents were searched, copied, analyzed, and stored at SIRIC (the few citations we were unable to obtain were indexed from abstracts only). Search strategies were based on the various names under which the two *Heliothis* species have been referred to in the literature. Citations were analyzed for relevance, and many documents containing only a brief mention of the species or which merely listed them in the literature review were excluded. Articles of a very general or popular nature and patents were also excluded. Papers dealing with *Heliothis* nuclear polyhedrosis virus (*Heliothis* NPV) infecting other lepidopterous species were not included because we considered that the name "*Heliothis*" was used to designate the virus and that references on this organism when it was not infecting *Heliothis* spp. were not within the scope of our bibliography.

This bibliography is comprised mostly of journal articles. Catalogues, checklists, and textbooks are also included since they were listed in the secondary sources (abstracting and indexing journals) used in the compilation of the bibliography. Many Ph.D. and M.S. theses are included, but we suspect that many more would be listed if there were a better mechanism for their bibliographical control. Citations to Ph.D. theses include information on the corresponding "Dissertation Abstracts" volume.

The original edition of state agricultural experiment station and extension service bulletins, circulars, leaflets, special publications, etc., and the latest revision of the same publication are included whenever possible. The latest revision obviously provides updated information on the subject, and the original edition offers a historical perspective. This criterion was also adopted for monographs and serial publications subjected to regular revisions unless there was a substantial change in authorship.

This bibliography is organized in four parts.

Alphabetical listing by main entry. Citations are listed alphabetically by author, following closely the "sort" or alphabetization routine used in SIRIC's computerized programs. Thus anonymous works are not listed at the head of the listing but rather in the alphabetical order for the word "anonymous." Authors' surnames and titles of citations are reproduced as printed in the original documents; given names are reduced to initials only. In some instances papers by the same author appear out of sequence because of obvious typographical errors in the original document. In one case we have used a note to refer readers to the correct name; the paper was published by P. A. Glick and H. M. Graham in the *Folia Entomologica Mexicana* in 1964, but the first author's

name was printed as P. A. Click. Inconsistencies in the use of Senior, Junior, III, or middle initials have been maintained as printed.

Keywords in parentheses expand the information content of the title. They were used as input for the computerized index. These keywords always refer to the *Heliothis* species and not to any other species dealt with in the paper.

Citations for papers published or received by SIRIC after the main body of the bibliography was already numbered are listed separately as an addendum. They do, however, appear in the general index.

Annual reports. This section includes annual reports from institutions, listed alphabetically under a state or country institutional unit. These reports are not included in the index. Some papers, although published in state entomologist reports, were written by entomologists other than the state entomologist and were considered sufficiently important to warrant their listing with the body of the bibliography.

Periodicals cited. This part serves primarily as a key to the abbreviations used, but periodicals that were not abbreviated are also included, so that the section serves as a complete listing of the bibliographical sources. For journals published abroad, the country is indicated in parentheses.

Subject index. The subject index is based on the keywords listed in parentheses after each citation. The index was generated by a computer program written especially for this purpose. Scope notes for the indexing terms are included to guide readers on the logics for the inclusion of papers under a certain category.

Resources Searched

The following resources were manually searched to create this bibliography: "Bibliography of Agriculture," Vol. 1 (1942) — June, 1978; "Biological Abstracts," Vol. 1 (1927) — June, 1978; "BioResearch Index," Vol. 1 (1965) — June, 1978; "Current Contents (Agriculture, Biology, and Environmental Sciences)," Vol. 1 (1970) — June, 1978; "Review of Applied Entomology," Series A, Vol. 1 (1913) — June, 1978; "Tropical Abstracts," Vol. 17 (1963) — 1974 (later superseded by "Abstracts of Tropical Agriculture," searched for 1975-1978). Five bibliographic data bases were also accessed for retrospective searches and for current citations: Biological Abstracts, BioResearch Index, CAIN, CAB, and Chemical Abstracts. This was done through the U.S. Department of Agriculture, Science and Education Administration, Technical Information Systems.

The following publications were exhaustively searched for relevant citations in the older literature: "Bibliography of the More Important Contributions to American Economic Entomology," parts 1-8, published by the U.S.

Department of Agriculture from 1889 to 1905, covering the period from the earliest writings to about 1904; "Index to the Literature of American Economic Entomology," which succeeded the Bibliography, Vols. 1-18, published from 1917 to 1962 by the USDA, covering the literature from January, 1905, to December, 1959; "The Zoological Record"; various Lepidoptera catalogues and checklists; D. F. Hardwick, "The Corn Earworm Complex" (1965, citation number 2013); A. L. Quaintance and C. T. Brues, "The Bollworm" (1905, citation number 3714); and some personal files.

We did not include references published in the USDA "Cooperative Economic Insect Report," the USDA "Insect Pest Survey Bulletin," and the "Canadian Insect Pest Review" because their indexes are very complete.

Many of the papers cited deal mainly with insects other than *H. zea* or *H. virescens*, especially the European corn borer or the alfalfa caterpillar. They are included because the life history and habits of the *Heliothis* being cited as one of the caterpillars mistaken for the insect under study are also described.

We were unable to verify a few old citations that have been repeatedly cited by different authors. Efforts to locate such papers through interlibrary loan resources proved fruitless. Some of these citations proved to be wrong, either because the journal did not start publication until a later date or because the paper could not be located as cited.

In the "Bibliography of the More Important Contributions to American Economic Entomology," indexing mistakes and mistakes in the bibliographic data were found. As an example of the former, we found in the index to part V under *Heliothis armigera*, citation number 840 (Packard, A. S. 1873. Injurious insects in Essex County. Bull. Essex Inst. 4 (for 1872):5-9) which contained no information on *Heliothis*. An example of wrong bibliographic data was found in the index to part VI under citation number 3442 (Webster, F. M. 1891. The corn or boll-worm. Ohio Farmer, 22 October 1891). Examining old volumes of the "Ohio Practical Farmer" (formerly "Ohio Farmer"), we found that this weekly journal was published on October 17 and October 24 of that year but not on October 22, as cited. We found, however, that on August 22, Mr. Webster published a small note under the title "Corn or Ball Worm" (*sic*).

This is just a small sample of mistakes that were found while compiling this work. Many more were detected, and the works obviously were omitted. We tried to clear the bibliography of mistakes that have been perpetuated in the literature. Discrepancies or omissions that readers may find who compare this bibliography with previously published bibliographies most certainly result from this effort. If flagrant omissions or errors are found in this bibliography, the authors will appreciate being informed.

Citations

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ADDENDUM

The following citations were retrieved after June 30, 1978, and therefore were not included in the main body of the bibliography. They follow the consecutive numbering used in the main body and are indexed in the general index.

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- 5162. Miller, L. K.; Dawes, K. P.** 1978. Restriction endonuclease analysis for the identification of baculovirus pesticides. *Appl. Environ. Microbiol.* 35(2):411-421. (*H. zea*; pathogens.)
- ***5163. Moore, L.** 1978. Keying on primary pest control to avoid tobacco budworm and other secondary pest problems. *Proc. West. Cotton Prod. Conf.* 1978:70-71. (*H. virescens*; pest management; cotton.)
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- 5166. Parham, P. H.; Lee, B. L.** 1978. BAAM[®] insecticide/ovicide. *Beltwide Cotton Prod. Mech. Conf. Proc.* (Dallas, Texas) 1978:78-79. (*H. spp.*; insecticide evaluation; cotton.)
- 5167. Phillips, J. R.; Nicholson, W. F.** 1978. A community-wide cotton insect management program. *Ark. Farm Res.* 27(2):3. (*H. virescens*; *H. zea*; pest management; cotton.)
- 5168. Plapp, F. W., Jr.; Bull, D. L.** 1978. Toxicity and selectivity of some insecticides to *Chrysopa carnea*, a predator of the tobacco budworm. *Environ. Entomol.* 7(3):431-434. (*H. virescens*; toxicology; predators; cotton.)
- 5169. Proshold, F. I.** 1977. Egg maturation, fecundity, and oviposition in the tobacco budworm: effect of mating. *Proc. N. Cent. Br. Entomol. Soc. Amer.* 32:42. (*H. virescens*; life history and habits; physiology.)
- 5170. Raun, E. S.** 1977. The center pivot and corn insect control. *Proc. N. Cent. Br. Entomol. Soc. Amer.* 32:52-53. (*H. zea*; insecticide evaluation; corn.)
- ***5171. Reynolds, H. T.; Hannibal, R. M.** 1978. Progress report on section 18. Insecticides for major cotton pests in southern California. *Proc. West. Cotton Prod. Conf.* 1978:87-89. (*H. virescens*; chemical control; cotton.)
- 5172. Ridgway, R. L.** 1978. The bollworm/budworm complex in 1977 and future strategies. *Beltwide Cotton Prod. Mech. Conf. Proc.* (Dallas, Texas) 1978:43-44. (*H. virescens*; *H. zea*; pest management; cotton.)
- 5173. Smith, D. B.; Hostetter, D. L.; Ignoffo, C. M.** 1978. Performance specifications for two microbial insecticides. *Entomol. Soc. Amer. Misc. Publ.* 10(5):44-66. (*H. zea*; pathogens; soybeans.)
- 5174. Smith, J. W.; Stadelbacher, E. A.** 1978. Predatory arthropods: seasonal rise and decline of populations in cotton fields in the Mississippi Delta. *Environ. Entomol.* 7(3):367-371. (*H. virescens*; *H. zea*; population studies; predators; cotton.)
- 5175. Stacey, A. L.** 1978. Corn earworm and fall armyworm on sweet corn. *Ga. Coop. Ext. Serv. Leaflet* 80 (rev.):8p. (*H. zea*; life history and habits; chemical control; sweet corn.)
- 5176. Stadelbacher, E. A.; Adams, J. R.; Faust, R. M.; Tompkins, G. J.** 1978. An iridescent virus of the bollworm *Heliothis zea* (Lepidoptera: Noctuidae). *J. Invertebr. Pathol.* 32(1):71-76. (*H. zea*; insect pathology.)
- 5177. Stam, P. A.; Clower, D. F.; Graves, J. B.; Schilling, P. E.** 1978. Effects of certain herbicides on some insects and spiders found in Louisiana cotton fields. *J. Econ. Entomol.* 71(3):477-480. (*H. virescens*; *H. zea*; chemical control; predators; cotton.)
- 5178. Yearian, W. C.; Young, S. Y.** 1978. Application of microbial insecticides on field crops. *Entomol. Soc. Amer. Misc. Publ.* 10(5):21-26. (*H. spp.*; pathogens; cotton; soybean; corn; tobacco.)

* Document not seen; citation indexed from abstracting sources.

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Annual Reports

This section includes reports from agricultural experiment stations, state departments of agriculture, and state entomologists. This list is not intended to be exhaustive; citations were compiled during the process of searching for documents relevant to the main body of the bibliography. Early reports of this kind were often the only vehicle for technical communication and should be consulted by those interested in the development of research from a historical point of view and by those interested in the early records of the presence of *Heliothis* on a given crop or location.

Reports are listed under a state or country institutional unit. Publication date, in boldface, is followed in parentheses by the years covered by the report.

Alabama Agricultural Experiment Station

1948 (1945-46) 56th and 57th Annu. Rep., p.36; **1950** (1947-48) 58th and 59th Annu. Rep., p.41-42; **1952** (1949-50) 60th and 61st Annu. Rep., p.54-55; **1954** (1951-52) 62nd and 63rd Annu. Rep., p.42-44; **1956** (1953-54) 64th and 65th Annu. Rep., p.47-48; **1958** (1955-56) 66th and 67th Annu. Rep., p.50.

Antigua Agricultural Department

1917 (1915-16) Rep., p.16; **1918** (1916-17) Rep., p.16,17; **1919** (1917-18) Rep., p.14,15; **1920** (1918-19) Rep., p.17.

Arizona Agricultural Experiment Station

1946 (1944-45) 56th Annu. Rep., p.47; **1947** (1945-46) 57th Annu. Rep., p.45.

Arizona Commission of Agriculture and Horticulture

1913 (1912-13) 5th Annu. Rep., p.38-41; **1914** (1913-14) 6th Annu. Rep., p.40; **1915** (1914-15) 7th Annu. Rep., p.40-41; **1917** (1916-17) 9th Annu. Rep., p.43,57-58; **1920** (1918-19) 11th Annu. Rep., p.69; **1923** (1921-22) 14th Annu. Rep., p.59-60,63,66; **1925** (1922-25) 15th and 16th Annu. Rep., p.58,59,60,65,66.

Arizona State Entomologist

1945 (1944-45) Rep., p.17; **1946** (1945-46) Rep., p.23; **1947** (1946-47) Rep., p.26; **1950** (1947-49) Rep., p.22,24.

Arkansas Agricultural Experiment Station

1890 (1889) 2nd Annu. Rep., p.146-147; **1935** (1934-35) 47th Annu. Rep., Bull. 323:35; **1940** (1938-39) 51st Annu. Rep., Bull. 386:65-66; **1942** (1940-41) 53rd Annu. Rep., Bull. 417:37-38; **1942** (1941-42) 54th Annu. Rep., Bull. 428:40-41; **1944** (1943-44) 56th Annu. Rep., Bull. 453:13-14.

Barbados Department of Science and Agriculture

1942 (1940-41) Annu. Rep., p.12; **1944** (1943-44) Annu. Rep., p.7.

Bermuda Department of Agriculture

1934 (1933) Plant Pathol. Rep., p.31; **1947** (1946) Plant Pathol. Rep., p.10.

British Columbia Department of Agriculture

1922 (1921) 16th Annu. Rep., p.U52; **1924** (1924) 19th Annu. Rep., p.K29; **1935** (1934) 29th Annu. Rep., p.R38; **1941** (1940) 35th Annu. Rep., p.H57; **1941** (1941) 36th Annu. Rep., p.Y52.

California Agricultural Experiment Station

1931 (1929-30) Rep., p.67-68; **1932** (1930-31) Rep., p.72; **1940** (1938-40) Rep., p.97,111-112.

California Department of Agriculture

1929 (1929) 10th Annu. Rep., Mon. Bull. 18:771; **1932** (1931) 12th Annu. Rep., Mon. Bull. 20(12):150-151; **1933** (1932) 13th Annu. Rep., Mon. Bull. 21:477,478-479; **1946** (1946) 27th Annu. Rep., Bull. 35:205; **1947** (1947) 28th Annu. Rep., Bull. 36:158,165; **1949** (1949) 30th Annu. Rep., Bull. 38:200,202,208; **1950** (1950) 31st Annu. Rep., Bull. 39:208.

Canada Department of Agriculture Dominion Entomologist

1923 (1919-20) Rep., p.9.

Canada Department of Agriculture Experimental Farms

1905 (1904) Rep., p.220-222; **1906** (1905) Rep., p.175.

Canada Department of Agriculture Minister of Agriculture

1949 (1948-49) Rep., p.84.

Colorado Agricultural Experiment Station

1939 (1938-39) 52nd Annu. Rep., p.24-25,29; **1940** (1939-40) 53rd Annu. Rep., p.24; **1958** (1957-58) 71st Annu. Rep., p.6.

Colorado State Entomologist

1922 (1921) 13th Annu. Rep., Circ. 36:18-19; **1925** (1924) 16th Annu. Rep., Circ. 47:13.

Connecticut Agricultural Experiment Station

1934 (1933) Rep., Bull. 359:378; **1936** (1935) Rep., Bull. 381:182; **1937** (1936) Rep., Bull. 393:184; **1938** (1937) Rep., Bull. 410:448; **1939** (1938) Rep., Bull. 421:31.

Connecticut State Entomologist

1907 (1906) 6th Rep., p.277; **1909** (1908) 8th Rep., p. 847-848; **1910** (1909) 9th Rep., p.367-368, fig.6; **1919** (1918) 18th Rep., p.317-318; **1920** (1919) 19th Rep., Bull. 218:188-189, 198; **1921** (1920) 20th Rep., Bull. 226:196,211; **1922** (1921) 21st Rep., Bull. 234:122,165-170; **1923** (1922) 22nd Rep.,

Bull. 247:276,343-344; **1924** (1923) 23rd Rep., Bull. 256:232; **1925** (1924) 24th Rep., Bull. 265:233; **1926** (1925) 25th Rep., Bull. 275:224; **1931** (1930) 30th Rep., Bull. 327:465; **1932** (1931) 31st Rep., Bull. 338:503; **1933** (1932) 32nd Rep., Bull. 349:372; **1934** (1933) 33rd Rep., Bull. 360:387,391; **1935** (1934) 34th Rep., Bull. 368:157; **1936** (1935) 35th Rep., Bull. 383:254,303; **1937** (1936) 36th Rep., Bull. 396:296; **1938** (1937) 37th Rep., Bull. 408:140.

Delaware Agricultural Experiment Station

1890 (1889) 2nd Annu. Rep., p.126-128,132, fig.24; **1901** (1899-1900) 12th Annu. Rep., p.209-210; **1939** (1938-39) Annu. Rep., Bull. 220:23; **1940** (1939-40) Annu. Rep., Bull. 227:23-24; **1943** (1942-43) Annu. Rep., Bull. 244:22; **1944** (1943-44) Annu. Rep., Bull. 251:26; **1945** (1944-45) Annu. Rep., Bull. 259:22; **1950** (1948-49) Annu. Rep., Bull. 283:22-23.

Florida Agricultural Experiment Station

1897 (1896) Annu. Rep., p.57; **1900** (1899-1900) Annu. Rep., p.75; **1915** (1913-14) Annu. Rep., p.Liii-Lv; **1916** (1914-15) Annu. Rep., p.Lxi,Lxxvi; **1919** (1917-18) Annu. Rep., p.61R; **1919** (1918-19) Annu. Rep., p.57R-58R; **1931** (1930-31) 45th Annu. Rep., p.151-152; **1932** (1931-32) Annu. Rep., p.183, 192; **1933** (1932-33) Annu. Rep., p.170; **1934** (1933-34) Annu. Rep., p.93-94; **1935** (1934-35) Annu. Rep., p.112; **1936** (1935-36) Annu. Rep., p.133; **1937** (1936-37) Annu. Rep., p.142; **1942** (1941-42) Annu. Rep., p.128; **1943** (1942-43) Annu. Rep., p.126-127; **1944** (1943-44) Annu. Rep., p.110; **1945** (1944-45) Annu. Rep., p.116,120,196-197; **1946** (1945-46) Annu. Rep., p.109-110,112,125,171,183; **1947** (1946-47) Annu. Rep., p.123,142-143,182,204; **1948** (1947-48) Annu. Rep., p.70,144-145,191-192; **1949** (1948-49) Annu. Rep., p.80,149,162,174,184,208,224-225; **1950** (1949-50) Annu. Rep., p.66,68,126,142,184,187,220; **1951** (1950-51) Annu. Rep., p.70,134,139,180,184,187,205-206,208,211-212; **1952** (1951-52) Annu. Rep., p.83,86,151,154,202-203,232,240,243,284; **1953** (1952-53) Annu. Rep., p.95-96,99-100,171,226,247,266,300, 325-326; **1954** (1953-54) Annu. Rep., p.145,207-208; **1955** (1954-55) Annu. Rep., p.104,164,223; **1956** (1955-56) Annu. Rep., p.150,216-217,327; **1957** (1956-57) Annu. Rep., p.94, 180,245-246,248-249,255,257,347; **1958** (1957-58) Annu. Rep., p.101-102,103,104,262-263,273; **1959** (1958-59) Annu. Rep., p.106,194,268; **1960** (1959-60) Annu. Rep., p.102-103,183-184,190,244; **1961** (1960-61) Annu. Rep., p.208; **1964** (1963-64) Annu. Rep., p.118,119-120,209,267; **1967** (1966-67) Annu. Rep., p.213; **1968** (July 1-Dec. 31, 1967) Annu. Rep., p.115, 137,181-182.

Georgia Agricultural Experiment Station

1901 (1900) 13th Annu. Rep., p.362; **1937** (1936-37) 49th Annu. Rep., p.50; **1938** (1937-38) 50th Annu. Rep., p.69-70; **1939** (1938-39) 51st Annu. Rep., p.72; **1940** (1939-40) 52nd Annu. Rep., p.61,63; **1941** (1940-41) 53rd Annu. Rep., p.116; **1942** (1941-42) 54th Annu. Rep., p.79; **1951** (1950-51) 63rd Annu. Rep., p.39.

Georgia Coastal Plain Experiment Station

1941 (1940-41) 21st Annu. Rep., Bull. 32:71; **1942** (1941-42) 22nd Annu. Rep., Bull. 35:22-23; **1947** (1946-47) 27th Annu. Rep., Bull. 44:42,43-44; **1950** (1949-50) 30th Annu. Rep., Bull. 49:28-29,48,50.

Georgia State Entomologist

1906 (1905) Rep., Ga. State Bd. Entomol. Bull. 20:168-169.

Haiti Technical Service of the Department of Agriculture and Professional Education

1929 (1928-29) Annu. Rep., Bull. 17:162.

Hawaii Agricultural Experiment Station

1909 (1908) Annu. Rep., p.30; **1910** (1909) Annu. Rep., p.18; **1912** (1911) Annu. Rep., p.17; **1914** (1913) Annu. Rep., p.20; **1937** (1937) Annu. Rep., p.42; **1941** (1940) Annu. Rep., p.42,45; **1943** (1942) Annu. Rep., p.117-118,122-125; **1945** (1944) Annu. Rep., p.61-62; **1948** (1946-48) Annu. Rep., p.76-77; **1951** (1948-50) Annu. Rep., p.69-71.

Hawaii Board of Agriculture and Forestry

1921 (1919-20) Bien. Rep., p.83,pl.21.

Hawaiian Sugar Planters Association

1943 (1942) Rep., p.19,21; **1946** (1945) Rep., p.19.

Idaho Agricultural Experiment Station

1937 (1936) Annu. Rep., Bull. 221:32.

Illinois Agricultural Experiment Station

1932 (1931-32) 45th Annu. Rep., p.140-141; **1935** (1933-34) 47th Annu. Rep., p.140-141; **1936** (1934-35) 48th Annu. Rep., p.158; **1937** (1935-36) 49th Annu. Rep., p.148-149; **1939** (1936-37) 50th Annu. Rep., p.165; **1942** (1937-38) 51st Annu. Rep., p.153.

Illinois State Entomologist

1878 (1878) 7th Rep., p.4,102-106,231-232,272,278,279; **1881** (1880) 10th Rep., p.50,150; **1882** (1881) 11th Rep., p.5,82-104; **1900** (1899) 21st Rep., p.148; **1905** (1904) 23rd Rep., p.10-11,17,67-68.

Indiana Agricultural Experiment Station

1933 (1932-33) 46th Annu. Rep., p.27; **1934** (1933-34) 47th Annu. Rep., p.35; **1936** (1935-36) 49th Annu. Rep., p.36; **1937** (1936-37) 50th Annu. Rep., p.49,53; **1938** (1937-38) 51st Annu. Rep., p.57; **1939** (1938-39) 52nd Annu. Rep., p.74; **1940** (1939-40) 53rd Annu. Rep., p.56; **1941** (1940-41) 54th Annu. Rep., p.63-64; **1942** (1941-42) 55th Annu. Rep., p.52; **1943** (1942-43) 56th Annu. Rep., p.57; **1949** (1948-49) 62nd Annu. Rep., p.88; **1955** (1954-55) 68th Annu. Rep., p.79-80.

Indiana Department of Conservation

1922 (1921) 3rd Annu. Rep., p.47,53-54; **1923** (1922) 4th Annu. Rep., p.38; **1926** (1925) 7th Annu. Rep., p.49; **1928** (1927) 9th Annu. Rep., p.49,51,52; **1932** (1932) 13th Annu. Rep., p.23,55.

Indiana State Board of Agriculture

1886 (1885) 35th Annu. Rep., p.201-202,213.

Indiana State Entomologist

1912 (1912) 5th Rep., p.148-150; **1917** (1916) 9th Rep., p.158.

Iowa Agricultural Experiment Station

1927 (1927) Annu. Rep., p.33-34; **1935** (1935) Annu. Rep., p.111.

Iowa Department of Agriculture

1928 (1927) Yearb. Agr. 28:131-132; 1942 (1941) Yearb. Agr. 42:164-166; 1943 (1942) Yearb. Agr. 43:128-129.

Jamaica Department of Agriculture

1916 (1915-16) Annu. Rep., p.33; 1918 (1917-18) Annu. Rep., p.36; 1924 (1923) Annu. Rep., p.22; 1925 (1924) Annu. Rep., p.18; 1928 (1927) Annu. Rep., p.20; 1933 (1932) Annu. Rep., p.17.

Kansas Agricultural Experiment Station

1918 (1916-17) Dir. Rep., p.19-20; 1920 (1918-19) Dir. Rep., p.42-43; 1921 (1919-20) Dir. Rep., p.22-23; 1924 (1922-24) Dir. Rep., p.79-81; 1927 (1924-26) Dir. Rep., p.75-76; 1928 (1926-28) Dir. Rep., p.71-75; 1930 (1928-30) 5th Bien. Rep., p.107; 1932 (1930-32) 6th Bien. Rep., p.90-91,98-99; 1934 (1932-34) 7th Bien. Rep., p.103-104; 1937 (1934-36) 8th Bien. Rep., p.97-98,104; 1940 (1938-40) 10th Bien. Rep., p.112-113,118; 1942 (1940-42) 11th Bien. Rep., p.53; 1944 (1942-44) 12th Bien. Rep., p.62-63,66; 1946 (1944-46) 13th Bien. Rep., p.63-64; 1948 (1946-48) 14th Bien. Rep., p.76; 1950 (1948-50) 15th Bien. Rep., p.84.

Kansas State Board of Agriculture

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Kentucky Agricultural Experiment Station

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Louisiana Agricultural Experiment Station

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Los Angeles County (Calif.) Agricultural Commissioner

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Maine Agricultural Experiment Station

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Maine Commissioner of Agriculture

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Maryland Agricultural Experiment Station

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Massachusetts Agricultural Experiment Station

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Massachusetts Department of Agriculture

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Michigan State Board of Agriculture

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Minnesota State Entomologist

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Mississippi Agricultural Experiment Station

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Missouri Agricultural Experiment Station

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Missouri State Board of Agriculture

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Missouri State Entomologist

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Montana State Entomologist

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Nebraska Agricultural Experiment Station

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Nebraska State Board of Agriculture

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New Jersey Agricultural Experiment Station

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New Jersey State Board of Agriculture

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New Jersey State Museum

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New Mexico Agricultural Experiment Station

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New York (Geneva) Agricultural Experiment Station

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New York State Entomologist

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North Carolina Commissioner of Agriculture

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Nova Scotia Department of Agriculture

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Ohio Agricultural Experiment Station

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Oklahoma Agricultural Experiment Station

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Ontario Department of Agriculture

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Oregon Agricultural Experiment Station

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Pennsylvania Department of Agriculture

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Pennsylvania State Board of Agriculture

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Rhode Island State Board of Agriculture

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South Carolina Agricultural Experiment Station

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South Carolina Department of Agriculture

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St. Vincent Agricultural Department

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Tennessee Agricultural Experiment Station

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Tennessee State Board of Entomology

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Texas Agricultural Experiment Station

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U.S. Commissioner of Agriculture

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U.S. Commissioner of Patents

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U.S. Department of Agriculture Bureau of Entomology

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**Vermont Commissioner of Agriculture
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Entomologist**

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- Ann. Mag. Natur. Hist. — Annals and Magazine of Natural History
- Ann. N.Y. Acad. Sci. — Annals of the New York Academy of Sciences
- Ann. Soc. Entomol. Quebec — Annales de la Société Entomologique de Quebec
- Ann. Zool. Écol. Anim. — Annales de Zoologie et Écologie Animale
- Announcer — The Announcer (Missouri College of Agriculture)
- Annu. Rev. Entomol. — Annual Review of Entomology
- Antigua Agr. Dep. Rep. — Antigua Agricultural Department Report
- Appl. Environ. Microbiol. — Applied and Environmental Microbiology
- Appl. Microbiol. — Applied Microbiology

- Arch. Natur. Abteil. A — Archiv für Naturgeschichte Abteilung A
- Argentina Minist. Agr. Circ. — Argentina Ministerio de Agricultura Circular
- Ariz. Agr. Exp. Sta. Annu. Rep. — Arizona Agricultural Experiment Station Annual Report
- Ariz. Agr. Exp. Sta. Bull. — Arizona Agricultural Experiment Station Bulletin
- Ariz. Agr. Exp. Sta. Rep. — Arizona Agricultural Experiment Station Report
- Ariz. Agr. Exp. Sta. Tech. Bull. — Arizona Agricultural Experiment Station Technical Bulletin
- Ariz. Agr. Exp. Sta. Timely Hints for Farmers — Arizona Agricultural Experiment Station Timely Hints for Farmers
- Ariz. Agr. Ext. Serv. Circ. — Arizona Agricultural Extension Service Circular
- Ariz. Agr. Ext. Serv. Folder — Arizona Agricultural Extension Service Folder
- Ariz. Comm. Agr. Hort. Annu. Rep. — Arizona Commission of Agriculture and Horticulture Annual Report
- Ariz. Coop. Ext. Serv. Folder — Arizona Cooperative Extension Service Folder
- Ariz. Coop. Ext. Serv. Ser. P — Arizona Cooperative Extension Service Series P
- Ariz. Coop. Ext. Serv. Ser. Q — Arizona Cooperative Extension Service Series Q
- Ariz. State Entomol. Rep. — Arizona State Entomologist Report
- Ark. Agr. Exp. Sta. Annu. Rep. — Arkansas Agricultural Experiment Station Annual Report
- Ark. Agr. Exp. Sta. Bull. — Arkansas Agricultural Experiment Station Bulletin
- Ark. Agr. Exp. Sta. Mimeo. Ser. — Arkansas Agricultural Experiment Station Mimeograph Series
- Ark. Agr. Exp. Sta. Rep. Ser. — Arkansas Agricultural Experiment Station Report Series
- Ark. Agr. Ext. Serv. Circ. — Arkansas Agricultural Extension Service Circular
- Ark. Agr. Ext. Serv. Leaflet — Arkansas Agricultural Extension Service Leaflet
- Ark. Farm Res. — Arkansas Farm Research
- Arq. Inst. Biol. — Arquivos do Instituto Biológico (São Paulo, Brazil)
- Asoc. Latinoamer. Entomol. Publ. — Asociación Latinoamericana de Entomología Publicación
- Auk — The Auk. Quarterly Journal of Ornithology
- Aust. J. Zool. — Australian Journal of Zoology
- Barbados Dep. Sci. Agr. Annu. Rep. — Barbados Department of Science and Agriculture Annual Report
- Beltwide Cotton Prod. Mech. Conf. Proc. — Beltwide Cotton Production and Mechanization Conference Proceedings
- Beltwide Cotton Prod. Res. Conf. Proc. — Beltwide Cotton Production Research Conferences Proceedings
- Bermuda Dep. Agr. Agr. Bull. — Bermuda Department of Agriculture Agricultural Bulletin
- Bermuda Dep. Agr. Plant Pathol. Rep. — Bermuda Department of Agriculture Plant Pathologist Report
- Bermuda Dep. Agr. Rep. — Bermuda Department of Agriculture Report
- Better Homes and Gardens
- Biochem. Genet. — Biochemical Genetics
- Biol. Bull. — The Biological Bulletin
- Biologico — O Biologico (Brazil)
- Biophys. Soc. Annu. Meet. Abstr. — Biophysical Society Annual Meeting Abstracts
- BioScience
- Bol. Agr. — Boletim de Agricultura (São Paulo, Brazil)
- Bol. Agr. (MG, Brazil) — Boletim de Agricultura (Minas Gerais, Brazil)
- Bol. Agr. Zootec. Vet. — Boletim de Agricultura, Zootecnia e Veterinaria (Brazil)
- Bol. Campo — Boletim do Campo (Brazil)
- Bol. Entomol. Venez. — Boletim de Entomologia Venezolana
- Bol. Estac. Exp. Agr. Soc. Nac. Agr. — Boletín de la Estación Experimental Agrícola de la Sociedad Nacional Agraria (Peru)
- Bol. Fitossanit. — Boletim Fitossanitário (Brazil)
- Bol. Flumin. Agr. — Boletim Fluminense de Agricultura (Brazil)
- Bol. Soc. Bras. Agron. — Boletim da Sociedade Brasileira de Agronomia
- Bol. Tec. Inst. Agron. Est. São Paulo — Boletim Técnico do Instituto Agronomico do Estado de São Paulo (Brazil)
- Bol. Tec. Inst. Agron. Norte — Boletim Técnico do Instituto Agronomico do Norte (Brazil)
- Bol. Tec. Inst. Agron. Sul — Boletim Técnico do Instituto Agronomico do Sul (Brazil)
- Bol. Tec. Inst. Fom. Algod. — Boletim Técnico Instituto de Fomento Algodonero (Colombia)
- Bol. Tec. Inst. Pesq. Agropec. Sul — Boletim Técnico do Instituto de Pesquisas Agropecuarias do Sul (Brazil)
- Bol. Tec. Serv. Invest. Promoción Agr. — Boletim Técnico del Servicio de Investigación y Promoción Agraria (Peru)
- Boll. Lab. Entomol. Agr. Filippo Silvestri — Bolletino del Laboratorio di Entomologia Agraria Filippo Silvestri
- Bot. Rev. — The Botanical Review
- Brit. Columbia Dep. Agr. Annu. Rep. — British Columbia Department of Agriculture Annual Report
- Bug Chatter (Idaho Agricultural Extension Service)
- Bull. Amer. Mus. Natur. Hist. — Bulletin of the American Museum of Natural History
- Bull. Brooklyn Entomol. Soc. — Bulletin of the Brooklyn Entomological Society
- Bull. Buffalo Soc. Natur. Sci. — Bulletin of the Buffalo Society of Natural Sciences
- Bull. Chrysanthemum Soc. Amer. — Bulletin of the Chrysanthemum Society of America
- Bull. Entomol. Res. — Bulletin of Entomological Research
- Bull. Entomol. Soc. Amer. — Bulletin of the Entomological Society of America
- Bull. Imp. Inst. — Bulletin of the Imperial Institute
- Bull. Natur. Hist. Soc. New Brunswick — Bulletin of the Natural History Society of New Brunswick
- Bull. S. Calif. Acad. Sci. — Bulletin of the Southern California Academy of Sciences
- Bull. Trop. Inst. — Bulletin of the Tropical Institute
- Bull. U.S. Nat. Mus. — Bulletin of the United States National Museum
- Calif. Agr. — California Agriculture
- Calif. Agr. Exp. Sta. Annu. Rep. — California Agricultural Experiment Station Annual Report
- Calif. Agr. Exp. Sta. Bull. — California Agricultural Experiment Station Bulletin
- Calif. Agr. Exp. Sta. Circ. — California Agricultural Experiment Station Circular
- Calif. Agr. Ext. Serv. Circ. — California Agricultural Extension Service Circular

- Calif. Agr. Ext. Serv. County Circ. — California Agricultural Extension Service County Circular
- Calif.-Ariz. Cotton — California-Arizona Cotton
- Calif. Coop. Ext. Serv. Leaflet. — California Cooperative Extension Service Leaflet
- Calif. Cultiv. — California Cultivator
- Calif. Dep. Agr. Annu. Rep. — California Department of Agriculture Annual Report
- Calif. Dep. Agr. Bull. — California Department of Agriculture Bulletin
- Calif. Dep. Agr. Bur. Entomol. Occas. Pap. — California Department of Agriculture. Bureau of Entomology Occasional Papers
- Calif. Dep. Agr. Mon. Bull. — California Department of Agriculture Monthly Bulletin
- Calif. Dep. Agr. Spec. Publ. — California Department of Agriculture Special Publication
- Calif. Farmer — California Farmer
- Calif. Spray-Chem. Corp. — California Spray-Chemical Corporation
- Calif. State Comm. Hort. Bien. Rep. — California State Commission of Horticulture Biennial Report
- Calif. State Comm. Hort. Mon. Bull. — California State Commission of Horticulture Monthly Bulletin
- Can. Canner — Canadian Canner
- Can. Dep. Agr. Bull. — Canada Department of Agriculture Bulletin
- Can. Dep. Agr. Bull. (N.S.) — Canada Department of Agriculture Bulletin (New Series)
- Can. Dep. Agr. Dom. Entomol. Rep. — Canada Department of Agriculture Dominion Entomologist Report
- Can. Dep. Agr. Entomol. Br. Brandon Leaflet. — Canada Department of Agriculture. Entomology Branch Brandon Leaflet
- Can. Dep. Agr. Entomol. Br. Bull. — Canada Department of Agriculture. Entomology Branch Bulletin
- Can. Dep. Agr. Entomol. Br. Circ. — Canada Department of Agriculture. Entomology Branch Circular
- Can. Dep. Agr. Fruit Veg. Crop Rep. — Canada Department of Agriculture Fruit and Vegetable Crop Report
- Can. Dep. Agr. Insect Ident. Sheet — Canada Department of Agriculture Insect Identification Sheet
- Can. Dep. Agr. Publ. — Canadian Department of Agriculture Publication
- Can. Dep. Agr. Sci. Serv. Div. Entomol. Proc. Publ. Ser. — Canada Department of Agriculture Science Service. Division of Entomology Processed Publication Series
- Can. Entomol. — Canadian Entomologist
- Can. Entomol. Suppl. — Canadian Entomologist Supplement
- Can. Exp. Farm Bull. — Canada Experimental Farm Bulletin
- Can. Exp. Farms Rep. — Canada Experimental Farms Reports
- Can. Farmer (N.S.) — The Canada Farmer (New Series)
- Can. J. Microbiol. — Canadian Journal of Microbiology
- Can. J. Plant Sci. — Canadian Journal of Plant Science
- Can. J. Res. — Canadian Journal of Research
- Can. J. Zool. — Canadian Journal of Zoology
- Can. Min. Agr. Rep. — Canada Minister of Agriculture Report
- Cañete Estac. Exp. Agr. Dep. Entomol. Circ. — Cañete (Peru) Estación Experimental Agrícola. Departamento de Entomología. Circular
- Canner — The Canner (Louisville, Kentucky)
- Canning Age (Pontiac, Illinois)
- Canning Trade (Baltimore, Maryland)
- Carolina Co-operator (North Carolina Cotton Growers' Cooperative Association)
- CATI Sec. Plant Oleag. Mimeo — Coordenadoria de Assistência Técnica Integral. Seção de Plantas Oleaginosas Mimeo
- Cell Tissue Res. — Cell and Tissue Research
- Cereal Chem. — Cereal Chemistry
- Chacaras Quintaes — Chacaras e Quintaes (Brazil)
- Chem-Biol. Interactions — Chemico-Biological Interactions
- Chem. Eng. News — Chemical and Engineering News
- Chem. Senses Flavor — Chemical Senses and Flavor
- Chemagro Courier
- ChemTech (Chemical Technology, Washington, D.C.)
- CIANE Reun. An. — CIANE Reunión Anual (Mexico)
- CIANO Inf. — CIANO Informa (Mexico)
- CIARCO Bol. Tec. — Centro de Investigaciones Agropecuarias Región Centro Occidental Boletín Técnico (Venezuela)
- Cientifica (Brazil)
- Citrus Ind. — The Citrus Industry
- Coleop. Bull. — The Coleopterists' Bulletin
- Colo. Agr. Exp. Sta. Annu. Rep. — Colorado Agricultural Experiment Station Annual Report
- Colo. Agr. Exp. Sta. Bull. — Colorado Agricultural Experiment Station Bulletin
- Colo. Agr. Exp. Sta. Progr. Rep. — Colorado Agricultural Experiment Station Progress Report
- Colo. Farm Home Res. — Colorado Farm and Home Research
- Colo. State Coll. Ext. Serv. Circ. — Colorado State College Extension Service Circular
- Colo. State Entomol. Annu. Rep. — Colorado State Entomologist Annual Report
- Colo. State Entomol. Circ. — Colorado State Entomologist Circular
- Commonw. Inst. Biol. Contr. Tech. Bull. — Commonwealth Institute of Biological Control Technical Bulletin
- Commonw. Inst. Biol. Contr. Tech. Commun. — Commonwealth Institute of Biological Control Technical Communication
- Comp. Biochem. Physiol. — Comparative Biochemistry and Physiology
- Conn. Agr. Exp. Sta. Annu. Rep. — Connecticut Agricultural Experiment Station Annual Report
- Conn. Agr. Exp. Sta. Bull. — Connecticut Agricultural Experiment Station Bulletin
- Conn. Agr. Exp. Sta. Circ. — Connecticut Agricultural Experiment Station Circular
- Conn. Agr. Ext. Serv. Bull. — Connecticut Agricultural Extension Service Bulletin
- Conn. State Entomol. Rep. — Connecticut State Entomologist Report
- Conn. State Geol. Natur. Hist. Surv. Bull. — Connecticut State Geological and Natural History Survey Bulletin
- Contact
- Contrib. Boyce Thompson Inst. — Contributions from Boyce Thompson Institute
- Coopercotia (Brazil)
- Correio Agro-Pecuario (Brazil)
- Coton Fibres Trop. — Coton et Fibres Tropicales
- Cotton Cotton Oil Press — The Cotton and Cotton Oil Press
- Cotton Farming
- Cotton Gin Oil Mill Press — The Cotton Gin and Oil Mill Press
- Cotton Ginners' J. Yearb. — The Cotton Ginners' Journal and Yearbook

- Cotton Grow. Rev. — Cotton Growing Review
 Cotton Int. — Cotton International
 Cotton Planters J. — Cotton Planters Journal
 Country Gent. — Country Gentleman
 Crop Sci. — Crop Science
 Crops Soils — Crops and Soils
 Cuba Estac. Exp. Agron. Circ. — Cuba Estación Experimental Agronomica Circular
 Cultiv. Country Gent. — The Cultivator and Country Gentleman
 Dakota Farmer
 Del. Agr. Exp. Sta. Annu. Rep. — Delaware Agricultural Experiment Station Annual Report
 Del. Agr. Exp. Sta. Bull. — Delaware Agricultural Experiment Station Bulletin
 Del. Agr. Ext. Serv. Bull. — Delaware Agricultural Extension Service Bulletin
 Del. Agr. Ext. Serv. Spec. Circ. — Delaware Agricultural Extension Service Special Circular
 Del. State Board Agr. Bull. — Delaware State Board of Agriculture Bulletin
 Delta Farm Press
 Deseret Farmer (Salt Lake City, Utah)
 Dirig. Rur. — Dirigente Rural (São Paulo, Brazil)
 Diss. Abstr. — Dissertation Abstracts
 Diss. Abstr. Int. — Dissertation Abstracts International
 Down to Earth (Dow Chemical Co.)
 Ecol. Soc. Australia Mem. — Ecological Society of Australia Memoirs
 Econ. Bot. — Economic Botany
 Egatea (Brazil)
 El Campo — El Campo, Revista Mensual Agricola y Ganadera (Mexico)
 El Salvador Minist. Agr. Ganad. Bol. Tec. — El Salvador Ministerio de Agricultura y Ganaderia Boletín Tecnico
 El Salvador Minist. Agr. Ganad. Circ. Agr. — El Salvador Ministerio de Agricultura y Ganaderia Circular Agricola
 Empire Cotton Grow. Corp. — The Empire Cotton Growing Corporation
 Empire Cotton Grow. Rev. — The Empire Growing Review
 Entomol. Amer. (N.S.) — Entomologica Americana (New Series)
 Entomol. Exp. Appl. — Entomologia Experimentalis et Applicata
 Entomol. Mon. Mag. — Entomologist's Monthly Magazine
 Entomol. News — Entomological News
 Entomol. Rec. J. Var. — The Entomologist's Record and Journal of Variation
 Entomol. Rev. — Entomological Review
 Entomol. Soc. Amer. Misc. Publ. — Entomological Society of America Miscellaneous Publications
 Entomol. Soc. Ont. Annu. Rep. — Entomological Society of Ontario Annual Report
 Entomol. Tidskr. — Entomologisk Tidskrift
 Entomol. Zeit. — Entomologische Zeitung (Stettin)
 Entomologist — The Entomologist (London, England)
 Entomophaga
 Entomophaga Mem. Hors Sér. — Entomophaga Memoire Hors Série
 Environ. Entomol. — Environmental Entomology
 Environ. Health Perspect. — Environmental Health Perspectives
 Environ. Letters — Environmental Letters
 Environment
 Everglades Sta. Mimeo Rep. — Everglades Station Mimeo Report (Florida)
 Exp. Cell Res. — Experimental Cell Research
 Exp. Parasitol. — Experimental Parasitology
 Experientia
 Ext. Dig. — The Extension Digest (Arkansas)
 FAO Plant Prot. Bull. — FAO (Food and Agriculture Organization of the United Nations) Plant Protection Bulletin
 Farm Chem. — Farm Chemicals
 Farm Home Sci. — Farm and Home Science
 Farm J. — Farm Journal
 Farm Quart. — The Farm Quarterly
 Farm Ranch — Farm and Ranch
 Farm Res. — Farm Research
 Farm Tech. — Farm Technology
 Farmer Dairyman — The Farmer and Dairyman
 Farmer Planter — Farmer and Planter
 Farmer Stockman
 Farmer's Advocate (Canada)
 Farmer's Guide (Huntington, Indiana)
 Farmers' Rev. — Farmers' Review
 Fed. Proc. — Federation Proceedings
 Fitófilo (Mexico)
 Fitotec. Latinoamer. — Fitotecnica Latinoamericana (Argentina)
 Fla. Agr. Exp. Sta. Annu. Rep. — Florida Agricultural Experiment Station Annual Report
 Fla. Agr. Exp. Sta. Belle Glade AREC Res. Rep. — Florida Agricultural Experiment Station, Belle Glade Agricultural Research and Education Center Research Report
 Fla. Agr. Exp. Sta. Bull. — Florida Agricultural Experiment Station Bulletin
 Fla. Agr. Exp. Sta. Circ. — Florida Agricultural Experiment Station Circular
 Fla. Agr. Exp. Sta. Monogr. Ser. — Florida Agricultural Experiment Station Monograph Series
 Fla. Agr. Exp. Sta. Press Bull. — Florida Agricultural Experiment Station Press Bulletin
 Fla. Agr. Exp. Sta. Progr. Rep. Mimeo. — Florida Agricultural Experiment Station Progress Report Mimeo-graph
 Fla. Coop. Ext. Serv. Circ. — Florida Cooperative Extension Service Circular
 Fla. Coop. Ext. Serv. Ext. Entomol. Mimeo. — Florida Cooperative Extension Service, Extension Entomology Mimeo-graph
 Fla. Coop. Ext. Serv. Ext. Entomol. Rep. — Florida Cooperative Extension Service, Extension Entomology Report
 Fla. Dep. Agr. Bull. (N.S.) — Florida Department of Agriculture Bulletin (New Series)
 Fla. Dep. Agr. Div. Plant Ind. Bull. — Florida Department of Agriculture, Division of Plant Industry Bulletin
 Fla. Dep. Agr. Quart. Bull. — Florida Department of Agriculture Quarterly Bulletin
 Fla. Entomol. — Florida Entomologist
 Fla. Farmer Fruit Grower — Florida Farmer and Fruit Grower
 Fla. Grower — Florida Grower
 Fla. State Plant Bd. Quart. Bull. — Florida State Plant Board Quarterly Bulletin
 Florists' Rev. — Florists' Review
 Flue-Cured Tob. Farm. — Flue-Cured Tobacco Farmer
 Folia Entomol. Mex. — Folia Entomologica Mexicana
 Food Industries
 Food Packer (Pontiac, Illinois)
 Frontiers Plant Sci. — Frontiers of Plant Science

- Ga. Agr. Exp. Sta. Annu. Rep. — Georgia Agricultural Experiment Station Annual Report
- Ga. Agr. Exp. Sta. Bull. — Georgia Agricultural Experiment Station Bulletin
- Ga. Agr. Exp. Sta. Circ. — Georgia Agricultural Experiment Station Circular
- Ga. Agr. Exp. Sta. Mimeo. Ser. — Georgia Agricultural Experiment Station Mimeograph Series
- Ga. Agr. Exp. Sta. Res. Bull. — Georgia Agricultural Experiment Station Research Bulletin
- Ga. Agr. Exp. Sta. Res. News — Georgia Agricultural Experiment Station Research News
- Ga. Agr. Exp. Sta. Res. Rep. — Georgia Agricultural Experiment Station Research Report
- Ga. Agr. Ext. Div. Bull. — Georgia Agricultural Extension Division Bulletin
- Ga. Agr. Ext. Serv. Bull. — Georgia Agricultural Extension Service Bulletin
- Ga. Agr. Res. — Georgia Agricultural Research
- Ga. Coastal Plain Exp. Sta. Annu. Rep. — Georgia Coastal Plain Experiment Station Annual Report
- Ga. Coastal Plain Exp. Sta. Bull. — Georgia Coastal Plain Experiment Station Bulletin
- Ga. Coastal Plain Exp. Sta. Mimeo. Paper — Georgia Coastal Plain Experiment Station Mimeograph Paper
- Ga. Coop. Ext. Serv. Leaflet. — Georgia Cooperative Extension Service Leaflet
- Ga. Dep. Entomol. Bull. — Georgia Department of Entomology Bulletin
- Ga. State Bd. Entomol. Bull. — Georgia State Board of Entomology Bulletin
- Gard. Chron. Amer. — Gardeners' Chronicle of America
- Gard. Gossip — Garden Gossip
- Gard. Mag. — Garden Magazine
- Geraniums (International Geranium Society)
- Gladiolus (New England Gladiolus Society)
- Golden Gard. — Golden Gardens (California Garden Club Federation)
- Grain Prod. News — Grain Producers News (Amarillo, Texas)
- Guyana Min. Agr. Nat. Res. Agr. Sta. Res. Rep. — Guyana Ministry of Agriculture and Natural Resources. Agricultural Station Research Report
- Haiti Tech. Serv. Dep. Agr. Prof. Educ. Annu. Rep. — Haiti Technical Service of the Department of Agriculture and Professional Education Annual Report
- Haiti Tech. Serv. Dep. Agr. Prof. Educ. Bull. — Haiti Technical Service of the Department of Agriculture and Professional Education Bulletin
- Hawaii Agr. Exp. Sta. Annu. Rep. — Hawaii Agricultural Experiment Station Annual Report
- Hawaii Agr. Exp. Sta. Bull. — Hawaii Agricultural Experiment Station Bulletin
- Hawaii Agr. Exp. Sta. Misc. Publ. — Hawaii Agricultural Experiment Station Miscellaneous Publication
- Hawaii Agr. Exp. Sta. Progr. Notes — Hawaii Agricultural Experiment Station Progress Notes
- Hawaii Agr. Ext. Circ. — Hawaii Agricultural Extension Circular
- Hawaii Bd. Comm. Agr. For. Bien. Rep. — Hawaii Board of Commissioners of Agriculture and Forestry Biennial Report
- Hawaii Farm Ann. — Hawaii Farm Annual
- Hawaii Farm Home — Hawaii Farm and Home
- Hawaiian Forest. Agr. — The Hawaiian Forester and Agriculturist
- Hawaiian Planters' Rec. — The Hawaiian Planters' Record
- Hawaiian Sugar Plant. Assoc. Rep. — Hawaiian Sugar Planters Association Report
- Hawaiian Sugar Tech. Rep. — Hawaiian Sugar Technologists Report
- Highlights Agr. Res. — Highlights of Agricultural Research (Alabama Agricultural Experiment Station)
- Hilgardia
- Hoard's Dairyman (The National Dairy Farm Magazine)
- Hoja Inf. Inst. Patol. Veg. — Hoja Informativa del Instituto de Patologia Vegetal (Argentina)
- Home Gard. — The Home Garden
- Home Veg. Gard. — Home Vegetable Gardening
- Hornero — El Hornero (Argentina)
- HortScience
- Hybrid Corn Ind. Res. Conf. Rep. — Hybrid Corn Industry Research Conference Report
- Idaho Agr. Exp. Sta. Annu. Rep. — Idaho Agricultural Experiment Station Annual Report
- Idaho Agr. Exp. Sta. Bull. — Idaho Agricultural Experiment Station Bulletin
- Idaho Agr. Exp. Sta. Mimeo. Leaflet. — Idaho Agricultural Experiment Station Mimeo Leaflet
- Idaho Agr. Ext. Serv. Bull. — Idaho Agricultural Extension Service Bulletin
- Idaho Agr. Ext. Serv. Curr. Inf. Ser. — Idaho Agricultural Extension Service Current Information Series
- Idaho Agr. Ext. Serv. War Circ. — Idaho Agricultural Extension Service War Circular
- Idesia (Chile)
- IDIA (Argentina)
- Iheringia (Brazil)
- Ill. Agr. — The Illinois Agriculturist
- Ill. Agr. Exp. Sta. Annu. Rep. — Illinois Agricultural Experiment Station Annual Report
- Ill. Agr. Exp. Sta. Bull. — Illinois Agricultural Experiment Station Bulletin
- Ill. Agr. Exp. Sta. Circ. — Illinois Agricultural Experiment Station Circular
- Ill. Agr. Ext. Serv. Circ. — Illinois Agricultural Extension Service Circular
- Ill. Biol. Monogr. — Illinois Biological Monographs
- Ill. Coop. Ext. Serv. Circ. — Illinois Cooperative Extension Service Circular
- Ill. Natur. Hist. Surv. Biol. Notes — Illinois Natural History Survey Biological Notes
- Ill. Natur. Hist. Surv. Bull. — Illinois Natural History Survey Bulletin
- Ill. Natur. Hist. Surv. Entomol. Ser. Circ. — Illinois Natural History Survey Entomological Series Circular
- Ill. State Entomol. Rep. — Illinois State Entomologist Report
- Ill. Veg. Growers Bull. — Illinois Vegetable Growers Bulletin
- In Vitro
- Indian J. Agr. Sci. — Indian Journal of Agricultural Sciences
- Indian J. Entomol. — Indian Journal of Entomology
- Indian Mus. Notes — Indian Museum Notes
- Indiana Agr. Exp. Sta. Annu. Rep. — Indiana Agricultural Experiment Station Annual Report
- Indiana Agr. Ext. Serv. Bull. — Indiana Agricultural Extension Service Bulletin
- Indiana Dep. Conserv. Annu. Rep. — Indiana Department of Conservation Annual Report
- Indiana Farmer
- Indiana State Bd. Agr. Annu. Rep. — Indiana State Board of Agriculture Annual Report

- Indiana State Entomol. Annu. Rep. — Indiana State Entomologist Annual Report
- Inf. CIANO — Informe CIANO (Mexico)
- Inf. Estac. Exp. Agr. Soc. Nac. Agr. — Informe de la Estación Experimental Agrícola de la Sociedad Nacional Agraria (Peru)
- Inf. Invest. Agr. — Informe de Investigaciones Agrícolas (CIANE, Mexico)
- Inf. Seg. Semestre Dep. Entomol. — Informe Segundo Semestre del Departamento de Entomología (Instituto de Investigaciones Agrícolas, Mexico)
- Inf. Tec. Dep. Entomol. — Informe Técnico del Departamento de Entomología (Instituto de Investigaciones Agrícolas, Mexico)
- Insect Biochem. — Insect Biochemistry
- Insect Life
- Insecutor Inscitiae Menstruus
- Inst. Tec. Estud. Sup. Monterrey Inf. Invest. — Instituto Técnico de Estudios Superiores de Monterrey. Informe de Investigación (Mexico)
- Int. Conf. Invertebr. Tissue Cult. — International Conference on Invertebrate Tissue Culture
- Int. Congr. Histochem. Cytochem. Summ. Rep. — International Congress of Histochemistry and Cytochemistry Summary Reports
- Int. J. Biochem. — International Journal of Biochemistry
- Int. J. Biometereol. — International Journal of Biometereology
- Int. J. Insect Morphol. Embryol. — International Journal of Insect Morphology and Embryology
- Int. Pest Control — International Pest Control
- Int. Rev. Agr. (N.S.) — International Review of Agriculture (New Series)
- Invest. Agr. — Investigación Agrícola (Chile)
- Iowa Agr. — Iowa Agriculturist
- Iowa Agr. Exp. Sta. Annu. Rep. — Iowa Agricultural Experiment Station Annual Report
- Iowa Agr. Exp. Sta. Bull. — Iowa Agricultural Experiment Station Bulletin
- Iowa Agr. Exp. Sta. Circ. — Iowa Agricultural Experiment Station Circular
- Iowa Coop. Ext. Serv. — Iowa Cooperative Extension Service
- Iowa Dep. Agr. Bull. — Iowa Department of Agriculture Bulletin
- Iowa Dep. Agr. Yearb. Agr. — Iowa Department of Agriculture Yearbook of Agriculture
- Iowa State Hort. Soc. Rep. — Iowa State Horticultural Society Report
- Iowa State J. Res. — Iowa State Journal of Research
- Iowa State J. Sci. — Iowa State Journal of Science
- Israel J. Entomol. — Israel Journal of Entomology
- J. Agr. Food Chem. — Journal of Agricultural and Food Chemistry
- J. Agr. Res. — Journal of Agricultural Research
- J. Agr. Univ. P.R. — Journal of Agriculture of the University of Puerto Rico
- J. Agron. — Journal de Agronomia (Brazil)
- J. Ala. Acad. Sci. — The Journal of the Alabama Academy of Science
- J. Amer. Oil Chem. Soc. — Journal of the American Oil Chemists' Society
- J. Amer. Soc. Agron. — Journal of the American Society of Agronomy
- J. Amer. Soc. Hort. Sci. — Journal of the American Society for Horticultural Science
- J. Appl. Optics — Journal of Applied Optics
- J. Ariz. Acad. Sci. — Journal of the Arizona Academy of Sciences
- J. Aust. Entomol. Soc. — Journal of the Australian Entomological Society
- J. Chem. Ecol. — Journal of Chemical Ecology
- J. Chem. Soc. Chem. Commun. — Journal of the Chemical Society Chemical Communications
- J. Chromatogr. Sci. — Journal of Chromatographic Science
- J. Colo.-Wyo. Acad. Sci. — Journal of the Colorado-Wyoming Academy of Science
- J. Dairy Sci. — Journal of Dairy Science
- J. Dep. Agr. P.R. — Journal of the Department of Agriculture of Porto Rico
- J. Econ. Entomol. — Journal of Economic Entomology
- J. Elisha Mitchell Sci. Soc. — Journal of the Elisha Mitchell Scientific Society
- J. Environ. Qual. — Journal of Environmental Quality
- J. Exp. Zool. — Journal of Experimental Zoology
- J. Ga. Entomol. Soc. — Journal of the Georgia Entomological Society
- J. Hered. — Journal of Heredity
- J. Insect Pathol. — Journal of Insect Pathology
- J. Insect Physiol. — Journal of Insect Physiology
- J. Invertebr. Pathol. — Journal of Invertebrate Pathology
- J. Jamaica Agr. Soc. — Journal of the Jamaica Agricultural Society
- J. Kans. Entomol. Soc. — Journal of the Kansas Entomological Society
- J. Linnean Soc. Zool. — Journal of the Linnean Society. Zoology
- J. Med. Entomol. — Journal of Medical Entomology
- J. Miss. Acad. Sci. — Journal of the Mississippi Academy of Science
- J. Morphol. — Journal of Morphology
- J. N.Y. Entomol. Soc. — Journal of the New York Entomological Society
- J. Nematol. — Journal of Nematology
- J. Parasitol. — The Journal of Parasitology
- J. Pest. Sci. — Journal of Pesticide Science
- J. Proc. Entomol. Soc. London (Ser. 3) — Journal of the Proceedings of the Entomological Society of London (Series 3)
- J. Rio Grande Valley Hort. Soc. — Journal of the Rio Grande Valley Horticultural Society
- J. Sci. Food Agr. Suppl. — Journal of the Science of Food and Agriculture Supplement
- J. Tenn. Acad. Sci. — Journal of the Tennessee Academy of Science
- J. Ultrastruct. Res. — Journal of Ultrastructure Research
- J. Virol. — Journal of Virology
- Jamaica Dep. Agr. Annu. Rep. — Jamaica Department of Agriculture Annual Report
- Jamaica Dep. Agr. Entomol. Bull. — Jamaica Department of Agriculture Entomological Bulletin
- Jamaica Dep. Agr. Entomol. Circ. — Jamaica Department of Agriculture Entomological Circular
- Jornadas Agron. — Jornadas Agronomicas. Servicio Shell para el Agricultor (Venezuela)
- Kans. Agr. Ed. — Kansas Agricultural Education
- Kans. Agr. Exp. Sta. Bien. Rep. — Kansas Agricultural Experiment Station Biennial Report
- Kans. Agr. Exp. Sta. Bull. — Kansas Agricultural Experiment Station Bulletin
- Kans. Agr. Exp. Sta. Circ. — Kansas Agricultural Experiment Station Circular

- Kans. Agr. Exp. Sta. Dir. Rep. — Kansas Agricultural Experiment Station. Director's Report
- Kans. Agr. Exp. Sta. Tech. Bull. — Kansas Agricultural Experiment Station Technical Bulletin
- Kans. Farmer — Kansas Farmer
- Kans. State Bd. Agr. Bien. Rep. — Kansas State Board of Agriculture Biennial Report
- Kans. State Bd. Agr. Quart. Rep. — Kansas State Board of Agriculture Quarterly Report
- Kans. State Bd. Agr. Rep. — Kansas State Board of Agriculture Report
- Kemia-Kemi (Helsinki)
- Korrespond. Zool. Mineral. Ver. Regensburg — Korrespondenzblatt Zoologisch-mineralogischer Verein Regensburg
- Ky. Agr. Exp. Sta. Annu. Rep. — Kentucky Agricultural Experiment Station Annual Report
- Ky. Agr. Exp. Sta. Bull. — Kentucky Agricultural Experiment Station Bulletin
- Ky. Agr. Ext. Serv. Circ. — Kentucky Agricultural Extension Service Circular
- Ky. Agr. Ext. Serv. Leaflet. — Kentucky Agricultural Extension Service Leaflet
- Ky. Coop. Ext. Serv. ENT — Kentucky Cooperative Extension Service ENT Series
- Ky. Coop. Ext. Serv. Misc. Publ. — Kentucky Cooperative Extension Service Miscellaneous Publications
- Ky. Farmer — Kentucky Farmer
- La. Agr. — Louisiana Agriculture
- La. Agr. Exp. Sta. Annu. Rep. — Louisiana Agricultural Experiment Station Annual Report
- La. Agr. Exp. Sta. Bull. — Louisiana Agricultural Experiment Station Bulletin
- La. Agr. Exp. Sta. Tech. Bull. — Louisiana Agricultural Experiment Station Technical Bulletin
- La. Agr. Ext. Circ. — Louisiana Agricultural Extension Circular
- La. Agr. Ext. Mimeo. — Louisiana Agricultural Extension Mimeograph
- La. Coop. Ext. Serv. Publ. — Louisiana Cooperative Extension Service Publication
- La. State Crop Pest Comm. Circ. — Louisiana State Crop Pest Commission Circular
- La Hacienda (Lockport, N.Y.)
- La Molina Estac. Exp. Agr. Inf. — La Molina Estación Experimental Agrícola Informe (Peru)
- La Molina Estac. Exp. Agr. Inf. Mens. — La Molina Estación Experimental Agrícola Informe Mensual (Peru)
- La Molina Estac. Exp. Agr. Mem. — La Molina Estación Experimental Agrícola Memória (Peru)
- La Molina Univ. Agr. An. Cient. — La Molina Universidade Agraria Anales Científicos (Peru)
- Lavoura Criação — Lavoura e Criação (Brazil)
- Life Sci. — Life Sciences
- Lipids
- Los Angeles Co. Agr. Comm. Annu. Rep. — Los Angeles County. Agricultural Commissioner Annual Report
- Los Angeles Co. Natur. Hist. Mus. Sci. Ser. — Los Angeles County Natural History Museum Science Series
- Madras Agr. J. — Madras Agricultural Journal
- MAFES Inform. Sheet — Mississippi Agricultural And Forestry Experiment Station Information Sheet
- MAFES Res. Highlights — Mississippi Agricultural and Forestry Experiment Station Research Highlights
- Maine Agr. Exp. Sta. Annu. Rep. — Maine Agricultural Experiment Station Annual Report
- Maine Agr. Exp. Sta. Bull. — Maine Agricultural Experiment Station Bulletin
- Maine Comm. Agr. Annu. Rep. — Maine Commissioner of Agriculture Annual Report
- Maine Dep. Agr. Quart. Bull. — Maine Department of Agriculture Quarterly Bulletin
- Manitoba Entomol. — The Manitoba Entomologist
- Market Growers J. — Market Growers Journal
- Mass. Agr. Exp. Sta. Annu. Rep. — Massachusetts Agricultural Experiment Station Annual Report
- Mass. Agr. Exp. Sta. Bull. — Massachusetts Agricultural Experiment Station Bulletin
- Mass. Agr. Ext. Serv. Spec. Circ. — Massachusetts Agricultural Extension Service Special Circular
- Mass. Dep. Agr. Annu. Rep. — Massachusetts Department of Agriculture Annual Report
- Md. Agr. Exp. Sta. Annu. Rep. — Maryland Agricultural Experiment Station Annual Report
- Md. Agr. Exp. Sta. Bull. — Maryland Agricultural Experiment Station Bulletin
- Md. Agr. Exp. Sta. Sci. Art. — Maryland Agricultural Experiment Station Scientific Article
- Md. Agr. Ext. Serv. Bull. — Maryland Agricultural Extension Service Bulletin
- Md. Coop. Ext. Serv. Fact Sheet — Maryland Cooperative Extension Service Fact Sheet
- Md. State Hort. Soc. Rep. — Maryland State Horticultural Society Report
- Md. Veg. Grow. Assoc. — Maryland Vegetable Growers' Association
- Meded. Fac. Landbouwwet. Rijksuniv. Gent — Mededelingen van de Faculteit Landbouwwetenschappen Rijksuniversiteit Gent (Belgium)
- Meded. Rijksfac. Landbouwwet. Gent — Mededelingen van de Rijksfaculteit Landbouwwetenschappen te Gent (Belgium)
- Mem. Entomol. Soc. Can. — Memoirs of the Entomological Society of Canada
- Mem. S. Calif. Acad. Sci. — Memoirs of the Southern California Academy of Sciences
- Mem. 7th Jornadas Agron. — Memorias Septimas Jornadas Agronomicas (Venezuela)
- Mem. Soc. Cient. Antonio Alzate — Memorias de la Sociedad Científica Antonio Alzate (Mexico)
- Mex. Agr. — Mexico Agrícola
- Mex. Inst. Nac. Invest. Agr. Circ. CIANE — Mexico Instituto Nacional de Investigaciones Agrícolas Circular CIANE
- Mex. Inst. Nac. Invest. Agr. Circ. CIANO — Mexico Instituto Nacional de Investigaciones Agrícolas Circular CIANO
- Mex. Inst. Nac. Invest. Agr. Foll. Misc. — Mexico Instituto Nacional de Investigaciones Agrícolas Folleto Miscelaneo
- Mex. Inst. Nac. Invest. Agr. Foll. Tec. — Mexico Instituto Nacional de Investigaciones Agrícolas Folleto Tecnico
- Mex. Secr. Agr. Fom. Dir. Agr. Bol. (N.S.) — Mexico Secretaria de Agricultura y Fomento Dirección de Agricultura Boletín (Nueva Serie)
- Mex. Secr. Agr. Ganad. Ofic. Estud. Espec. Foll. Misc. — Mexico Secretaria de Agricultura y Ganaderia Oficina de Estudios Especiales Folleto Miscelaneo
- Mich. Agr. Exp. Sta. Bull. — Michigan Agricultural Experiment Station Bulletin
- Mich. Agr. Exp. Sta. Quart. Bull. — Michigan Agricultural Experiment Station Quarterly Bulletin

- Mich. Agr. Exp. Sta. Spec. Bull. — Michigan Agricultural Experiment Station Special Bulletin
- Mich. Coop. Ext. Serv. Bull. — Michigan Cooperative Extension Service Bulletin
- Mich. State Bd. Agr. Annu. Rep. — Michigan State Board of Agriculture Annual Report
- Minn. Agr. Exp. Sta. Bull. — Minnesota Agricultural Experiment Station Bulletin
- Minn. Agr. Exp. Sta. Tech. Bull. — Minnesota Agricultural Experiment Station Technical Bulletin
- Minn. Agr. Ext. Serv. Bull. — Minnesota Agricultural Extension Service Bulletin
- Minn. Agr. Ext. Serv. Folder — Minnesota Agricultural Extension Service Folder
- Minn. Agr. Ext. Serv. Spec. Bull. — Minnesota Agricultural Extension Service Special Bulletin
- Minn. Hort. — Minnesota Horticulturist
- Minn. State Entomol. Rep. — Minnesota State Entomologist Report
- Miss. Agr. Exp. Sta. Annu. Rep. — Mississippi Agricultural Experiment Station Annual Report
- Miss. Agr. Exp. Sta. Bull. — Mississippi Agricultural Experiment Station Bulletin
- Miss. Agr. Exp. Sta. Circ. — Mississippi Agricultural Experiment Station Circular
- Miss. Agr. Exp. Sta. Inform. Sheet — Mississippi Agricultural Experiment Station Information Sheet
- Miss. Agr. Exp. Sta. Tech. Bull. — Mississippi Agricultural Experiment Station Technical Bulletin
- Miss. Agr. For. Exp. Sta. Bull. — Mississippi Agricultural and Forestry Experiment Station Bulletin
- Miss. Agr. For. Exp. Sta. Dep. Agr. Econ. Tech. Publ. — Mississippi Agricultural and Forestry Experiment Station Department of Agricultural Economics Technical Publication
- Miss. Agr. For. Exp. Sta. Inform. Sheet — Mississippi Agricultural and Forestry Experiment Station Information Sheet
- Miss. Agr. For. Exp. Sta. Tech. Bull. — Mississippi Agricultural and Forestry Experiment Station Technical Bulletin
- Miss. Coop. Ext. Serv. Bull. — Mississippi Cooperative Extension Service Bulletin
- Miss. Coop. Ext. Serv. Circ. — Mississippi Cooperative Extension Service Circular
- Miss. Coop. Ext. Serv. Inform. Sheet — Mississippi Cooperative Extension Service Information Sheet
- Miss. Farm Res. — Mississippi Farm Research
- Miss. State Plant Bd. Circ. (N.S.) — Mississippi State Plant Board Circular (New Series)
- Miss. State Plant Bd. Quart. Bull. — Mississippi State Plant Board Quarterly Bulletin
- Mo. Agr. Exp. Sta. Annu. Rep. — Missouri Agricultural Experiment Station Annual Report
- Mo. Agr. Exp. Sta. Bull. — Missouri Agricultural Experiment Station Bulletin
- Mo. Agr. Exp. Sta. Circ. — Missouri Agricultural Experiment Station Circular
- Mo. Agr. Exp. Sta. Res. Bull. — Missouri Agricultural Experiment Station Research Bulletin
- Mo. Coop. Ext. Serv. Circ. — Missouri Cooperative Extension Service Circular
- Mo. Ruralist — The Missouri Ruralist
- Mo. State Bd. Agr. Annu. Rep. — Missouri State Board of Agriculture Annual Report
- Mo. State Bd. Agr. Mon. Bull. — Missouri State Board of Agriculture Monthly Bulletin
- Mo. State Entomol. Annu. Rep. — Missouri State Entomologist Annual Report
- Mo. State Hort. Soc. Annu. Rep. — Missouri State Horticultural Society Annual Report
- Mont. Agr. Exp. Sta. Annu. Rep. — Montana Agricultural Experiment Station Annual Report
- Mont. Agr. Exp. Sta. Bull. — Montana Agricultural Experiment Station Bulletin
- Mont. Coop. Ext. Serv. Leaflet. — Montana Cooperative Extension Service Leaflet
- Mont. Coop. Ext. Serv. Ser. A. — Montana Cooperative Extension Service Series A
- Mont. State Entomol. Rep. — Montana State Entomologist Report
- Murrelet — The Murrelet (Pacific Northwest Bird and Mammal Society)
- Mycologia
- N. C. Agr. Exp. Sta. Annu. Rep. — North Carolina Agricultural Experiment Station Annual Report
- N. C. Agr. Exp. Sta. Bull. — North Carolina Agricultural Experiment Station Bulletin
- N. C. Agr. Exp. Sta. Tech. Bull. — North Carolina Agricultural Experiment Station Technical Bulletin
- N. C. Agr. Ext. Serv. Circ. — North Carolina Agricultural Extension Service Circular
- N. C. Agr. Ext. Serv. Cotton Prod. Guide — North Carolina Agricultural Extension Service Cotton Production Guide
- N. C. Agr. Ext. Serv. Insect Notes — North Carolina Agricultural Extension Service Insect Notes
- N. C. Comm. Agr. Bien. Rep. — North Carolina Commissioner of Agriculture Biennial Report
- N. C. Coop. Ext. Serv. — North Carolina Cooperative Extension Service
- N. C. Dep. Agr. Bull. — North Carolina Department of Agriculture Bulletin
- N. C. Dep. Agr. Bull. Suppl. — North Carolina Department of Agriculture Bulletin Supplement
- N. C. Dep. Agr. Div. Entomol. — North Carolina Department of Agriculture Division of Entomology
- N. C. Dep. Agr. Entomol. Circ. — North Carolina Department of Agriculture Entomological Circular
- N. D. Agr. Exp. Sta. Circ. — North Dakota Agricultural Experiment Station Circular
- N. D. Agr. Ext. Serv. Spec. Circ. — North Dakota Agricultural Extension Service Special Circular
- N. D. Coop. Ext. Serv. — North Dakota Cooperative Extension Service
- N. Engl. Homestead — New England Homestead
- N. H. Hort. Soc. J. — New Hampshire Horticultural Society Journal
- N. J. Agr. — New Jersey Agriculture
- N. J. Agr. Exp. Sta. Annu. Rep. — New Jersey Agricultural Experiment Station Annual Report
- N. J. Agr. Exp. Sta. Circ. — New Jersey Agricultural Experimental Station Circular
- N. J. Agr. Ext. Serv. Bull. — New Jersey Agricultural Extension Service Bulletin
- N. J. State Bd. Agr. Annu. Rep. — New Jersey State Board of Agriculture Annual Report
- N. J. State Hort. Soc. Hort. News — New Jersey State Horticultural Society Horticultural News
- N. J. State Mus. Annu. Rep. — New Jersey State Museum Annual Report

- N. J. Ten-Ton Tomato Club Rep. — New Jersey Ten-Ton Tomato Club Report
- N. Mex. Agr. Exp. Sta. Annu. Rep. — New Mexico Agricultural Experiment Station Annual Report
- N. Mex. Agr. Exp. Sta. Bull. — New Mexico Agricultural Experiment Station Bulletin
- N. Mex. Agr. Exp. Sta. Res. Rep. — New Mexico Agricultural Experiment Station Research Report
- N. Mex. Ext. News — New Mexico Extension News
- N. Y. Acad. Sci. Trans. — New York Academy of Sciences Transactions
- N. Y. (Cornell) Agr. Exp. Sta. Mem. — New York (Cornell) Agricultural Experiment Station Memoirs
- N. Y. (Cornell) Agr. Ext. Bull. — New York (Cornell) Agricultural Extension Bulletin
- N. Y. (Geneva) Agr. Exp. Sta. Annu. Rep. — New York (Geneva) Agricultural Experiment Station Annual Report
- N. Y. (Geneva) Agr. Exp. Sta. Bull. — New York (Geneva) Agricultural Experiment Station Bulletin
- N. Y. (Geneva) Agr. Exp. Sta. Circ. — New York (Geneva) Agricultural Experiment Station Circular
- N. Y. (Geneva) Agr. Exp. Sta. Res. Circ. — New York (Geneva) Agricultural Experiment Station Research Circular
- N. Y. State Entomol. Rep. — New York State Entomologist Report
- N. Y. State Mus. Bull. — New York State Museum Bulletin
- N. Y. State Mus. Natur. Hist. Annu. Rep. — New York State Museum of Natural History Annual Report
- Nachr. Schädlingsbekämp. — Nachrichten über Schädlingsbekämpfung
- Nature
- Nature New Biol. — Nature New Biology
- Nebr. Agr. Exp. Sta. Annu. Rep. — Nebraska Agricultural Experiment Station Annual Report
- Nebr. Agr. Exp. Sta. Ext. Circ. — Nebraska Agricultural Experiment Station Extension Circular
- Nebr. Agr. Ext. Serv. Circ. — Nebraska Agricultural Extension Service Circular
- Nebr. Farmer — Nebraska Farmer
- Nebr. Insect Pest Plant Dis. Bur. Circ. — Nebraska Insect Pest and Plant Disease Bureau Circular
- Nebr. State Bd. Agr. Annu. Rep. — Nebraska State Board of Agriculture Annual Report
- Nebr. State Entomol. Bull. — Nebraska State Entomologist Bulletin
- Nev. Agr. Exp. Sta. Bull. — Nevada Agricultural Experiment Station Bulletin
- Newell Entomol. Soc. News — Newell Entomological Society News
- Northeast La. Agr. Exp. Sta. Macon Ridge Br. Sta. — Northeast Louisiana Agricultural Experiment Station (St. Joseph, La.) and Macon Ridge Branch Station (Winnsboro, La.)
- Northwest Hort. — Northwest Horticulturist
- Not. Agr. Serv. Shell Agr. — Noticias Agrícolas. Servicio Shell para el Agricultor (Venezuela)
- Nouv. Agron. Antilles Guyane — Nouvelles Agronomiques des Antilles et de la Guyane
- Nova Scotia Dep. Agr. Rep. — Nova Scotia Department of Agriculture Report
- Nova Scotia Dep. Natur. Res. Bull. — Nova Scotia Department of Natural Resources Bulletin
- Nova Scotia Fruit Growers' Assoc. Annu. Rep. — Nova Scotia Fruit Growers' Association Annual Report
- Ohio Agr. Exp. Sta. Annu. Rep. — Ohio Agricultural Experiment Station Annual Report
- Ohio Agr. Exp. Sta. Bull. — Ohio Agricultural Experiment Station Bulletin
- Ohio Agr. Exp. Sta. Mon. Bull. — Ohio Agricultural Experiment Station Monthly Bulletin
- Ohio Agr. Exp. Sta. Res. Circ. — Ohio Agricultural Experiment Station Research Circular
- Ohio Agr. Ext. Serv. Bull. — Ohio Agricultural Extension Service Bulletin
- Ohio Agr. Ext. Serv. Leaflet. — Ohio Agricultural Extension Service Leaflet
- Ohio Farm Home Res. — Ohio Farm and Home Research
- Ohio J. Sci. — The Ohio Journal of Science
- Ohio Prac. Farmer — The Ohio Practical Farmer
- Okla. Agr. Exp. Sta. Bien. Rep. — Oklahoma Agricultural Experiment Station Biennial Report
- Okla. Agr. Exp. Sta. Bull. — Oklahoma Agricultural Experiment Station Bulletin
- Okla. Agr. Exp. Sta. Circ. — Oklahoma Agricultural Experiment Station Circular
- Okla. Agr. Exp. Sta. Mimeo. Circ. — Oklahoma Agricultural Experiment Station Mimeograph Circular
- Okla. Agr. Exp. Sta. Progr. Rep. — Oklahoma Agricultural Experiment Station Progress Report
- Okla. Agr. Exp. Sta. Rep. — Oklahoma Agricultural Experiment Station Report
- Okla. Agr. Ext. Serv. Circ. — Oklahoma Agricultural Extension Service Circular
- Okla. State Univ. Ext. Facts — Oklahoma State University Extension Facts
- Ont. Agr. Coll. Exp. Farm Annu. Rep. — Ontario Agricultural College and Experimental Farm Annual Report
- Ont. Dep. Agr. Annu. Rep. Agr. Exp. Union — Ontario Department of Agriculture Annual Report of the Agricultural and Experimental Union
- Ont. Dep. Agr. Bull. — Ontario Department of Agriculture Bulletin
- Ont. Dep. Agr. Circ. — Ontario Department of Agriculture Circular
- Orange Judd Farmer
- Ore. Agr. Exp. Sta. Annu. Rep. — Oregon Agricultural Experiment Station Annual Report
- Ore. Agr. Exp. Sta. Bull. — Oregon Agricultural Experiment Station Bulletin
- Ore. Agr. Exp. Sta. Circ. — Oregon Agricultural Experiment Station Circular
- Ore. Agr. Exp. Sta. Circ. Inf. — Oregon Agricultural Experiment Station Circular of Information
- Ore. Agr. Ext. Serv. Bull. — Oregon Agricultural Extension Service Bulletin
- Ore. State Bd. Hort. Bien. Rep. — Oregon State Board of Horticulture Biennial Report
- Outlook Agr. — Outlook on Agriculture
- P. R. Exp. Sta. Bull. — Puerto Rico (Mayaguez) Experiment Station Bulletin
- P. R. Exp. Sta. Circ. — Puerto Rico (Mayaguez) Experiment Station Circular
- P. R. Exp. Sta. Rep. — Puerto Rico (Mayaguez) Experiment Station Report
- P. R. Ins. Exp. Sta. Annu. Rep. — Puerto Rico (Rio Piedras) Insular Experiment Station Annual Report
- P. R. Ins. Exp. Sta. Bull. — Puerto Rico (Rio Piedras) Insular Experiment Station Bulletin

- Pa. Agr. Exp. Sta. Bull. — Pennsylvania Agricultural Experiment Station Bulletin
- Pa. Agr. Exp. Sta. Bull. Suppl. — Pennsylvania Agricultural Experiment Station Bulletin Supplement
- Pa. Agr. Exp. Sta. Progr. Rep. — Pennsylvania Agricultural Experiment Station Progress Report
- Pa. Agr. Ext. Serv. Circ. — Pennsylvania Agricultural Extension Service Circular
- Pa. Dep. Agr. Annu. Rep. — Pennsylvania Department of Agriculture Annual Report
- Pa. Dep. Agr. Mon. Bull. — Pennsylvania Department of Agriculture Monthly Bulletin
- Pa. Farmer — Pennsylvania Farmer
- Pa. State Bd. Agr. Rep. — Pennsylvania State Board of Agriculture Report
- Pa. State Univ. Abstr. Doc. Diss. — Pennsylvania State University Abstracts of Doctoral Dissertations
- Pac. Rural Press — Pacific Rural Press
- Pan-Pac. Entomol. — Pan-Pacific Entomologist
- Panhandle Bull. — Panhandle Bulletin
- PANS — Pest Articles and News Summaries
- Parasitology
- PCEA Bol. Tri. Exp. Agropec. — Programa Cooperativo de Experimentación Agropecuaria. Boletín Trimestral de Experimentación Agropecuaria (Peru)
- Peanut Sci. — Peanut Science
- Pergamino Estac. Exp. Agropec. Inf. Tec. — Pergamino Estación Experimental Agropecuaria Informe Técnico (Argentina)
- Pergamino Estac. Exp. Agropec. Mem. Reun. Maíz — Pergamino Estación Experimental Agropecuaria. Memoria de la Reunión de Maíz (Argentina)
- Peru Direc. Agr. Ganad. Col. Cartilla — Peru Dirección de Agricultura, Ganadería y Colonización Cartilla
- Peru Direc. Gen. Agr. Bol. — Peru Dirección General de Agricultura Boletín
- Peru Direc. Gen. Agr. Divulg. Inf. — Peru Dirección General de Agricultura Divulgaciones e Informaciones
- Pesq. Agropec. Bras. — Pesquisa Agropecuaria Brasileira
- Pest. Biochem. Physiol. — Pesticide Biochemistry and Physiology
- Physiol. Zool. — Physiological Zoology
- Physis — Physis. Revista de la Sociedad Argentina de Ciencias Naturales
- Phytochemistry
- Phytopathology
- Plant Dis. Rep. — Plant Disease Reporter
- Plant Sci. Entomol. — Plant Sciences Entomology
- Plants Gard. — Plants and Gardens
- Pol. Pismo Entomol. — Polskie Pismo Entomologiczne
- Pract. Entomol. — Practical Entomologist
- Prairie Farmer
- Prairie Farmer Annu. — The Prairie Farmer Annual
- Proc. Amer. Assoc. Adv. Sci. — Proceedings of the American Association for the Advancement of Science
- Proc. Amer. Assoc. Econ. Entomol. Cotton States Br. — Proceedings of the American Association of Economic Entomologists Cotton States Branch
- Proc. Amer. Philos. Soc. — Proceedings of the American Philosophical Society
- Proc. Amer. Phytopathol. Soc. — Proceedings of the American Phytopathological Society
- Proc. Amer. Soc. Hort. Sci. — Proceedings of the American Society for Horticultural Science
- Proc. Annu. Conf. Amer. Inst. Ind. Eng. — Proceedings of the Annual Conference of the American Institute of Industrial Engineers
- Proc. Annu. Hybrid Corn Ind. Res. Conf. — Proceedings of the Annual Hybrid Corn Industry Research Conference
- Proc. Assoc. Econ. Entomol. Annu. Meet. — Proceedings of the Association of Economic Entomologists Annual Meeting
- Proc. Assoc. S. Agr. Workers — Proceedings of the Association of Southern Agricultural Workers
- Proc. Boston Soc. Natur. Hist. — Proceedings of the Boston Society of Natural History
- Proc. Conn. Veg. Grow. Assoc. — Proceedings of the Connecticut Vegetable Growers Association
- Proc. Cotton Impr. Conf. — Proceedings of the Cotton Improvement Conference
- Proc. Cotton Insect Control Conf. — Proceedings of the Cotton Insect Control Conference
- Proc. EMSA Meet. — Proceedings of the Electron Microscopy Society of America Meetings
- Proc. Entomol. Soc. Ont. — Proceedings of the Entomological Society of Ontario
- Proc. Entomol. Soc. Philadelphia — Proceedings of the Entomological Society of Philadelphia
- Proc. Entomol. Soc. Wash. — Proceedings of the Entomological Society of Washington
- Proc. Fla. State Hort. Soc. — Proceedings of the Florida State Horticultural Society
- Proc. Ga. State Hort. Soc. — Proceedings of the Georgia State Horticultural Society
- Proc. Hawaiian Entomol. Soc. — Proceedings of the Hawaiian Entomological Society
- Proc. Indiana Acad. Sci. — Proceedings of the Indiana Academy of Science
- Proc. Int. Colloq. Insect Pathol. — Proceedings of the International Colloquium on Insect Pathology
- Proc. Int. Colloq. Insect Pathol. Microb. Control — Proceedings of the International Colloquium on Insect Pathology and Microbial Control
- Proc. Int. Colloq. Invertebr. Pathol. — Proceedings of the International Colloquium of Invertebrate Pathology
- Proc. Int. Conf. Med. Elec. Biol. Eng. — Proceedings of the International Conference on Medical Electronics and Biological Engineering
- Proc. Int. Congr. Entomol. — Proceedings of the International Congress of Entomology
- Proc. Int. Grassland Congr. — Proceedings of the International Grassland Congress
- Proc. Int. Hort. Congr. — Proceedings of the International Horticultural Congress
- Proc. Iowa Acad. Sci. — Proceedings of the Iowa Academy of Sciences
- Proc. La. Acad. Sci. — Proceedings of the Louisiana Academy of Sciences
- Proc. La. State Hort. Soc. — Proceedings of the Louisiana State Horticultural Society
- Proc. N. Cent. Br. Entomol. Soc. Amer. — Proceedings of the North Central Branch of the Entomological Society of America
- Proc. N. Cent. States Br. Amer. Assoc. Econ. Entomol. — Proceedings of the North Central States Branch of the American Association of Economic Entomologists
- Proc. N. Cent. States Entomol. — Proceedings of the North Central States Entomologists

- Proc. N. J. State Hort. Soc. — Proceedings of the New Jersey State Horticultural Society
- Proc. Nat. Ext. Insect-Pest Management Workshop — Proceedings of a National Extension Insect-Pest Management Workshop, Purdue University, Indiana
- Proc. Ohio Veg. Potato Grow. Assoc. — Proceedings of the Ohio Vegetable and Potato Growers Association
- Proc. Okla. Acad. Sci. — Proceedings of the Oklahoma Academy of Science
- Proc. Portage Co. Hort. Soc. — Proceedings of the Portage County Horticultural Society
- Proc. Rio Grande Valley Hort. Soc. — Proceedings of the Rio Grande Valley Horticultural Society
- Proc. S. Dak. Acad. Sci. — Proceedings of the South Dakota Academy of Sciences
- Proc. Soc. Exp. Biol. Med. — Proceedings of the Society for Experimental Biology and Medicine
- Proc. Soc. Promotion Agr. Sci. — Proceedings of the Society for the Promotion of Agricultural Science
- Proc. Soil Crop Sci. Soc. Fla. — Proceedings of the Soil and Crop Science Society of Florida
- Proc. Tall Timbers Conf. Ecol. Anim. Contr. Habitat Manage. — Proceedings of the Tall Timbers Conference on Ecological Animal Control by Habitat Management
- Proc. Tenn. State Hort. Soc. — Proceedings of the Tennessee State Horticultural Society
- Proc. Tex. Conf. Insect Plant Disease Weed Brush Contr. — Proceedings of the Texas Conference on Insect, Plant Disease, Weed and Brush Control
- Proc. Trop. Reg. Amer. Soc. Hort. Sci. — Proceedings of the Tropical Region American Society for Horticultural Science
- Proc. U.S. Nat. Mus. — Proceedings of the United States National Museum
- Proc. West. Cotton Prod. Conf. — Proceedings of the Western Cotton Production Conference
- Proc. Zool. Soc. London — Proceedings of the Zoological Society of London
- Progr. Agr. Ariz. — Progressive Agriculture in Arizona
- Progr. Farmer — Progressive Farmer
- Progr. Farmer, Ky.-Tenn. Ed. — Progressive Farmer, Kentucky-Tennessee Edition
- Progr. Farmer, Tex. Ed. — Progressive Farmer, Texas Edition
- Psyche
- Publ. Cent. Estudios Entomol. — Publicaciones del Centro de Estudios Entomologicos (Universidad de Chile)
- Purdue Agr. — The Purdue Agriculturist
- Purdue Univ. Coop. Ext. Serv. Publ. E — Purdue University Cooperative Extension Service Publication E
- Purdue Univ. Dep. Agr. Ext. Annu. Rep. — Purdue University Department of Agricultural Extension Annual Report
- Quebec Soc. Prot. Plants Rep. Suppl. — Quebec Society for the Protection of Plants Report Supplement
- R. I. Coop. Agr. Ext. Mimeo. Circ. — Rhode Island Cooperative Agricultural Extension Mimeograph Circular
- R. I. State Bd. Agr. Annu. Rep. — Rhode Island State Board of Agriculture Annual Report
- Rancho Mex. — Rancho Mexicano
- Red River Valley La. Agr. Exp. Sta. Annu. Res. Rep. — Red River Valley, Louisiana Agricultural Experiment Station Annual Research Report
- Rep. N. Cent. States Entomol. — Report of the North Central States Entomologists
- Res. Farming — Research and Farming
- Res. Popul. Ecol. — Researches on Population Ecology
- Reun. Interamer. Fitogenet. Fitopatol. Entomol. Edafol. — Reunión Interamericana de Fitogenetistas, Fitopatologos, Entomologos, y Edafologos
- Rev. Agr. (Brazil) — Revista de Agricultura (Brazil)
- Rev. Agr. (Colombia) — Revista Agricola (Colombia)
- Rev. Agr. (Cuba) — Revista de Agricultura, Comercio y Trabajo (Cuba)
- Rev. Agr. (Mexico) — La Revista Agricola (San Jacinto, Mexico)
- Rev. Agr. d'Haiti — Revue Agricole d'Haiti
- Rev. Agr. P. R. — Revista de Agricultura de Puerto Rico
- Rev. Agron. — Revista Agronomica (Brazil)
- Rev. Asoc. Ingen. Agron. — Revista de la Asociación de Ingenieros Agronomos (Uruguay)
- Rev. Cent. Ciencias Rur. — Revista do Centro de Ciencias Rurais (Brazil)
- Rev. CERES — Revista CERES (Brazil)
- Rev. Chilena Entomol. — Revista Chilena de Entomologia
- Rev. Cubana Cienc. Agr. — Revista Cubana de Ciencias Agricolas
- Rev. Entomol. — Revista de Entomologia (Rio de Janeiro, Brazil)
- Rev. Fac. Agron. — Revista de la Facultad de Agronomia (Venezuela)
- Rev. Fac. Nacion. Agron. — Revista de la Facultad Nacional de Agronomia (Colombia)
- Rev. Ind. Agr. Tucuman — Revista Industrial y Agricola de Tucuman (Argentina)
- Rev. Inst. Bolsa Cereales — Revista Institucional de la Bolsa de Cereales (Argentina)
- Rev. Invest. Agr. — Revista de Investigaciones Agropecuarias (Argentina)
- Rev. Peru. Entomol. — Revista Peruana de Entomologia
- Rev. Peru. Entomol. Agr. — Revista Peruana de Entomologia Agricola
- Rev. Tec. Col. Ingen. Agron. Mex. — Revista Tecnica del Colegio de Ingenieros Agronomos de Mexico
- Riv. Agr. Subtrop. Trop. — Rivista di Agricoltura Subtropicale e Tropicale
- Rocky Mt. Conf. Entomol. Rep. — Rocky Mountain Conference of Entomologists Report
- Rural Alabamian
- Rural Carolinian
- Rural Kentuckian
- Rural N. Y. — The Rural New Yorker
- S. Agr. — Southern Agriculturist
- S. C. Agr. Exp. Sta. Annu. Rep. — South Carolina Agricultural Experiment Station Annual Report
- S. C. Agr. Exp. Sta. Bull. — South Carolina Agricultural Experiment Station Bulletin
- S. C. Agr. Exp. Sta. Bull. (N.S.) — South Carolina Agricultural Experiment Station Bulletin (New Series)
- S. C. Agr. Ext. Serv. Bull. — South Carolina Agricultural Extension Service Bulletin
- S. C. Agr. Ext. Serv. Circ. — South Carolina Agricultural Extension Service Circular
- S. C. Agr. Ext. Serv. Inf. Card — South Carolina Agricultural Extension Service Information Card
- S. C. Comm. Agr. Commer. Ind. Annu. Rep. — South Carolina Commissioner of Agriculture, Commerce and Industries Annual Report
- S. C. Dep. Agr. Yearb. — South Carolina Department of Agriculture Yearbook
- S. C. Weekly News Notes — South Carolina (Clemson Agricultural College) The Weekly News Notes

- S. Coop. Ser. Bull. — Southern Cooperative Series Bulletin
 S. Corn Impr. Conf. Rep. — Southern Corn Improvement Conference Report
 S. Cultiv. — Southern Cultivator
 S. D. Agr. Exp. Sta. Bull. — South Dakota Agricultural Experiment Station Bulletin
 S. D. Coop. Ext. Serv. Handb. — South Dakota Cooperative Extension Service Handbook
 S. D. Farm Home Res. — South Dakota Farm and Home Research
 S. Florist Nurseryman — Southern Florist and Nurseryman
 S. Livestock J. — Southern Livestock Journal
 S. Planter — Southern Planter (Richmond, Virginia)
 S. Seedsman — Southern Seedsman
 Santiago de las Vegas Estac. Exp. Agron. Bol. — Santiago de las Vegas Estación Experimental Agronomica Boletín (Cuba)
 Santiago de las Vegas Estac. Exp. Agron. Circ. — Santiago de las Vegas Estación Experimental Agronomica Circular (Cuba)
 Sci. Amer. — Scientific American
 Sci. News — Science News
 Sci. News Letter — Science News Letter
 Sci. Total Environ. — The Science of the Total Environment Science
 Science Suppl. — Science Supplement
 Seed World
 Serv. Inform. Agr. Minist. Agr. Ser. Did. — Serviço de Informação Agrícola, Ministerio da Agricultura Serie Didática (Brazil)
 Serv. Shell Agr. Ser. A — Servicio Shell para el Agricultor Serie A (Venezuela)
 Serv. Shell Agr. Ser. A. Inf. — Servicio Shell para el Agricultor Serie A Informe (Venezuela)
 Sitios Fazendas — Sitios e Fazendas (Brazil)
 Soap Sanitary Chem. — Soap and Sanitary Chemicals
 Soc. Nac. Agr. Mem. — Sociedad Nacional Agraria Memoria (Lima, Peru)
 Solo — O Solo (Brazil)
 Southeast Farm Press
 Southwest. Entomol. — The Southwestern Entomologist
 Southwest. Stockman — Southwestern Stockman
 Soybean Dig. — Soybean Digest
 Span
 St. Vincent Agr. Dep. Rep. — St. Vincent Agricultural Department Report
 Station to Station Res. News — Station to Station Research News (Union Carbide)
 Success. Farm. — Successful Farming
 Sugar Bull. — The Sugar Bulletin
 Surinam Landbouwproefsta. Bull. — Surinam Landbouwproefstation Bulletin
 Tenn. Agr. Exp. Sta. Annu. Rep. — Tennessee Agricultural Experiment Station Annual Report
 Tenn. Agr. Exp. Sta. Bull. — Tennessee Agricultural Experiment Station Bulletin
 Tenn. Agr. Exp. Sta. Circ. — Tennessee Agricultural Experiment Station Circular
 Tenn. Agr. Ext. Serv. Circ. — Tennessee Agricultural Extension Service Circular
 Tenn. Agr. Ext. Serv. Leaflet. — Tennessee Agricultural Extension Service Leaflet
 Tenn. Agr. Ext. Serv. Publ. — Tennessee Agricultural Extension Service Publication
 Tenn. Dep. Agr. Div. Insect Plant Dis. Control Bull. — Tennessee Department of Agriculture. Division of Insect and Plant Disease Control Bulletin
 Tenn. Dep. Agr. Market Bull. — Tennessee Department of Agriculture Market Bulletin
 Tenn. Farm Home Sci. Progr. Rep. — Tennessee Farm and Home Science Progress Report
 Tenn. State Bd. Entomol. Annu. Rep. — Tennessee State Board of Entomology Annual Report
 Tetrahedron Lett. — Tetrahedron Letters
 Tex. Agr. Exp. Sta. Agr. Res. Ext. Center Tech. Rep. — Texas Agricultural Experiment Station. Agricultural Research and Extension Center Technical Report
 Tex. Agr. Exp. Sta. Annu. Rep. — Texas Agricultural Experiment Station Annual Report
 Tex. Agr. Exp. Sta. Bull. — Texas Agricultural Experiment Station Bulletin
 Tex. Agr. Exp. Sta. Circ. — Texas Agricultural Experiment Station Circular
 Tex. Agr. Exp. Sta. Dep. Entomol. Tech. Rep. — Texas Agricultural Experiment Station. Department of Entomology Technical Report
 Tex. Agr. Exp. Sta. Ind. Eng. Entomol. Dep. Tech. Rep. — Texas Agricultural Experiment Station. Industrial Engineering and Entomology Departments Technical Report
 Tex. Agr. Exp. Sta. Leaflet. — Texas Agricultural Experiment Station Leaflet
 Tex. Agr. Exp. Sta. Misc. Publ. — Texas Agricultural Experiment Station Miscellaneous Publication
 Tex. Agr. Exp. Sta. Progr. Rep. — Texas Agricultural Experiment Station Progress Report
 Tex. Agr. Exp. Sta. Tech. Rep. — Texas Agricultural Experiment Station Technical Report
 Tex. Agr. Ext. Serv. Bull. — Texas Agricultural Extension Service Bulletin
 Tex. Agr. Ext. Serv. Circ. — Texas Agricultural Extension Service Circular
 Tex. Agr. Ext. Serv. Misc. Publ. — Texas Agricultural Extension Service Miscellaneous Publications
 Tex. Agr. Progr. — Texas Agricultural Progress
 Tex. Cotton Convention, Proc. Annu. Session — Texas Cotton Convention. Proceedings of the Annual Session
 Tex. Dep. Agr. Bull. — Texas Department of Agriculture Bulletin
 Tex. Farm. Citric. — Texas Farming and Citriculture
 Tex. Hi-Plains Irrig. J. — Texas Hi-Plains Irrigation Journal
 Tex. J. Sci. — Texas Journal of Science
 Tex. Stockman Farmer — Texas Stockman and Farmer
 Tobacco Int. — Tobacco International
 Tobacco Sci. — Tobacco Science
 Toxicon
 Trans. Amer. Entomol. Soc. — Transactions of the American Entomological Society
 Trans. ASAE — Transactions of the American Society of Agricultural Engineers
 Trans. Entomol. Soc. London — Transactions of the Entomological Society of London
 Trans. Ill. State Acad. Sci. — Transactions of the Illinois State Academy of Science
 Trans. Ill. State Hort. Soc. — Transactions of the Illinois State Horticultural Society
 Trans. Iowa State Hort. Soc. — Transactions of the Iowa State Horticultural Society
 Trans. Kans. Acad. Sci. — Transactions of the Kansas Academy of Science

- Trans. Kans. Hort. Soc. — Transactions of the Kansas Horticultural Society
- Trans. Minn. State Hort. Soc. — Transactions of the Minnesota State Horticultural Society
- Trans. Peninsula Hort. Soc. — Transactions of the Peninsula Horticultural Society
- Trans. Roy. Soc. Can. (Ser. 2) — Transactions of the Royal Society of Canada (Series 2)
- Trans. West. Colo. Hort. Soc. — Transactions of the Western Colorado Horticultural Society
- Trinidad Tobago Dep. Agr. Bull. — Trinidad and Tobago Department of Agriculture Bulletin
- Trop. Agr. — Tropical Agriculture (Trinidad)
- Tucuman Estac. Exp. Agr. Publ. Misc. — Tucuman Estación Experimental Agrícola Publicación Miscelanea (Argentina)
- Turrialba (Costa Rica)
- Tuskegee Inst. Exp. Sta. Bull. — Tuskegee Institute Experiment Station Bulletin
- Univ. Buenos Aires Fac. Agron. Vet. Publ. Intern. — Universidad de Buenos Aires. Facultad de Agronomía y Veterinaria Publicación Interna
- Univ. Calif. Div. Agr. Sci. — University of California Division of Agricultural Sciences
- U.S. Bur. Ed. Bull. — United States Bureau of Education Bulletin
- U.S. Comm. Agr. Rep. — United States Commissioner of Agriculture Report
- U.S. Comm. Patents Agr. Rep. — United States Commissioner of Patents Agriculture Report
- U.S. Dep. Inter. Entomol. Comm. Bull. — United States Department of the Interior, Entomological Commission Bulletin
- U.S. Entomol. Comm. Rep. — United States Entomological Commission Report
- U.S. Geol. Geogr. Surv. Rep. — United States Geological and Geographical Survey Report
- U.S. Works Progr. Admin. Nat. Res. Proj. Rep. — United States Works Progress Administration, National Research Project Report
- USDA Agr. Econ. Rep. — United States Department of Agriculture, Agricultural Economic Report
- USDA Agr. Handb. — United States Department of Agriculture, Agriculture Handbook
- USDA Agr. Inf. Bull. — United States Department of Agriculture, Agriculture Information Bulletin
- USDA Agr. Res. Admin. Bur. Entomol. Plant Quar. — United States Department of Agriculture, Agricultural Research Administration, Bureau of Entomology and Plant Quarantine
- USDA Agr. Res. Admin. Res. Achiev. Sheet — United States Department of Agriculture, Agricultural Research Administration Research Achievement Sheet
- USDA Agr. Res. Serv. — United States Department of Agriculture, Agricultural Research Service
- USDA Agr. Res. Serv. 33 — United States Department of Agriculture, Agricultural Research Service Series 33
- USDA Agr. Res. Serv. Entomol. Res. Br. — United States Department of Agriculture, Agricultural Research Service, Entomology Research Branch
- USDA Agr. Res. Serv. Entomol. Res. Div. — United States Department of Agriculture, Agricultural Research Service, Entomology Research Division
- USDA Agr. Res. Serv. Prod. Res. Rep. — United States Department of Agriculture, Agricultural Research Service, Production Research Report
- USDA Agr. Res. Serv. Tech. Bull. — United States Department of Agriculture, Agricultural Research Service Technical Bulletin
- USDA Agr. War Inf. AWI — United States Department of Agriculture, Agriculture War Information
- USDA APHIS — United States Department of Agriculture, Animal and Plant Health Inspection Service
- USDA Bull. — United States Department of Agriculture Bulletin
- USDA Bur. Bio. Surv. Bull. — United States Department of Agriculture, Bureau of Biological Survey Bulletin
- USDA Bur. Entomol. Bull. — United States Department of Agriculture, Bureau of Entomology Bulletin
- USDA Bur. Entomol. Circ. — United States Department of Agriculture, Bureau of Entomology Circular
- USDA Bur. Entomol. Plant Quar. E — United States Department of Agriculture, Bureau of Entomology and Plant Quarantine Series E
- USDA Bur. Entomol. Plant Quar. Picture Sheet — United States Department of Agriculture, Bureau of Entomology and Plant Quarantine Picture Sheet
- USDA Bur. Entomol. Plant Quar. Rep. Chief — United States Department of Agriculture, Bureau of Entomology and Plant Quarantine Report of the Chief
- USDA Bur. Entomol. Rep. Entomol. — United States Department of Agriculture, Bureau of Entomology Report of the Entomologist
- USDA Bur. Plant Ind. Rep. — United States Department of Agriculture, Bureau of Industry Report
- USDA Bur. Plant Ind. Soils Agr. Eng. Rep. — United States Department of Agriculture, Bureau of Plant Industry, Soils and Agricultural Engineering Report
- USDA Bur. Plant Quar. Serv. Reg. Announ. — United States Department of Agriculture, Bureau of Plant Quarantine, Service and Regulatory Announcements
- USDA Circ. — United States Department of Agriculture Circular
- USDA Coop. Econ. Insect Rep. — United States Department of Agriculture Cooperative Economic Insect Report
- USDA Coop. Plant Pest Rep. — United States Department of Agriculture Cooperative Plant Pest Report
- USDA Div. Entomol. Bull. — United States Department of Agriculture, Division of Entomology Bulletin
- USDA Div. Entomol. Bull. (N.S.) — United States Department of Agriculture, Division of Entomology Bulletin (New Series)
- USDA Farmers' Bull. — United States Department of Agriculture Farmers' Bulletin
- USDA For. Serv. Gen. Tech. Rep. PSW — United States Department of Agriculture Forest Service, General Technical Report Pacific Southwest
- USDA Home Gard. Bull. — United States Department of Agriculture Home and Garden Bulletin
- USDA Leaflet — United States Department of Agriculture Leaflet
- USDA Misc. Publ. — United States Department of Agriculture Miscellaneous Publications
- USDA Mon. Rep. — United States Department of Agriculture Monthly Report
- USDA Off. Exp. Stas. Annu. Rep. — United States Department of Agriculture, Office of Experiment Stations Annual Report

- USDA Off. Exp. Stas. Bull. — United States Department of Agriculture. Office of Experiment Stations Bulletin
- USDA Off. Inf. — United States Department of Agriculture. Office of Information
- USDA Rep. Secr. Agr. — United States Department of Agriculture. Report of the Secretary of Agriculture
- USDA Tech. Bull. — United States Department of Agriculture Technical Bulletin
- USDA Yearb. Agr. — United States Department of Agriculture Yearbook of Agriculture
- Utah Agr. Exp. Sta. Bien. Rep. — Utah Agricultural Experiment Station Biennial Report
- Utah Agr. Exp. Sta. Bull. — Utah Agricultural Experiment Station Bulletin
- Utah Agr. Exp. Sta. Circ. — Utah Agricultural Experiment Station Circular
- Utah Agr. Exp. Sta. Leaflet. — Utah Agricultural Experiment Station Leaflet
- Utah Agr. Exp. Sta. Mimeo. Ser. — Utah Agricultural Experiment Station Mimeograph Series
- Utah Agr. Ext. Serv. Bull. — Utah Agricultural Extension Service Bulletin
- Utah Agr. Ext. Serv. Circ. — Utah Agricultural Extension Service Circular
- Utah Agr. Ext. Serv. Entomol. Mimeo Ser. — Utah Agricultural Extension Service Entomology Mimeo Series
- Utah Agr. Ext. Serv. Leaflet. — Utah Agricultural Extension Service Leaflet
- Utah Agr. Ext. Serv. Mimeo. Ser. — Utah Agricultural Extension Service Mimeograph Series
- Utah Agr. Ext. Serv. Mimeo. Sheet — Utah Agricultural Extension Service Mimeograph Sheet
- Utah Agr. Ext. Serv. Proc. Annu. School Canning Crop Growers — Utah Agricultural Extension Service. Proceedings of the Annual School for Canning Crop Growers
- Utah Farmer
- Va. Acad. Sci. Proc. — Virginia Academy of Science Proceedings
- Va. Agr. Exp. Sta. Bull. — Virginia Agricultural Experiment Station Bulletin
- Va. Agr. Exp. Sta. Tech. Bull. — Virginia Agricultural Experiment Station Technical Bulletin
- Va. Agr. Ext. Serv. Bull. — Virginia Agricultural Extension Service Bulletin
- Va. Agr. Ext. Serv. Circ. — Virginia Agricultural Extension Service Circular
- Va. Agr. Ext. Serv. Contr. Ser. — Virginia Agricultural Extension Service Control Series
- Va. Ext. Div. News — Virginia Extension Division News
- Va. J. Sci. — Virginia Journal of Science
- Va. State Crop Pest Comm. Quart. Bull. — Virginia State Crop Pest Commission Quarterly Bulletin
- Va. State Entomol. Plant Pathol. Rep. — Virginia State Entomologist and Plant Pathologist Report
- Va. Truck Exp. Sta. Bull. — Virginia Truck Experiment Station Bulletin
- Veg. Grow. Assoc. Amer. Annu. Rep. — Vegetable Growers Association of America Annual Report
- Ventura Co. Calif. Agr. Comm. Rep. — Ventura County, California. Agricultural Commissioner Report
- Vida Agricola (Peru)
- Vineland Weekly (New Jersey)
- Virgin Isl. Agr. Exp. Sta. Bull. — Virgin Islands Agricultural Experiment Station Bulletin
- Virgin Isl. Agr. Exp. Sta. Rep. — Virgin Islands Agricultural Experiment Station Report
- Virology
- Vt. Agr. Ext. Serv. Circ. — Vermont Agricultural Extension Service Circular
- Vt. Comm. Agr. State For. Bien. Rep. — Vermont Commissioner of Agriculture and the State Forester Biennial Report
- W. Indian Bull. — West Indian Bulletin
- W. Indies Imp. Dep. Agr. Pamph. Ser. — West Indies Imperial Department of Agriculture Pamphlet Series
- W. Va. Agr. Exp. Sta. Bull. — West Virginia Agricultural Experiment Station Bulletin
- W. Va. Agr. Ext. Serv. Misc. Publ. — West Virginia Agricultural Extension Service Miscellaneous Publications
- Wash. Agr. Exp. Sta. Annu. Rep. — Washington Agricultural Experiment Station Annual Report
- Wash. Agr. Exp. Sta. Bull. — Washington Agricultural Experiment Station Bulletin
- Wash. Agr. Exp. Sta. Circ. — Washington Agricultural Experiment Station Circular
- Wash. Agr. Exp. Sta. Mimeo. Circ. — Washington Agricultural Experiment Station Mimeograph Circular
- Wash. Agr. Ext. Serv. Ext. Mimeo. — Washington Agricultural Extension Service Extension Mimeograph
- Wash. Irrig. Agr. Res. Ext. Center (Prosser) Progr. Rep. — Washington Irrigated Agriculture Research and Extension Center (Prosser) Progress Report
- Weekly Sun (New York)
- West. Canner Packer — Western Canner and Packer
- West. Farm Life — The Western Farm Life
- West. Grower Shipper — Western Grower and Shipper
- West. Tobacco J. — Western Tobacco Journal
- West. Wash. Agr. Exp. Sta. Circ. — Western Washington Agricultural Experiment Station Circular
- What's New Crops Soils — What's New in Crops and Soils
- Wilson Bull. — The Wilson Bulletin
- Wis. Agr. Exp. Sta. Annu. Rep. — Wisconsin Agricultural Experiment Station Annual Report
- Wis. Agr. Exp. Sta. Bull. — Wisconsin Agricultural Experiment Station Bulletin
- Wis. Agr. Ext. Serv. Spec. Circ. — Wisconsin Agricultural Extension Service Special Circular
- Wis. Coop. Ext. Serv. Publ. — Wisconsin Cooperative Extension Service Publication
- Wis. Dep. Agr. Markt. Bien. Rep. — Wisconsin Department of Agriculture and Markets Biennial Report
- Wis. Hort. — Wisconsin Horticulture
- World Farming
- World Rev. Pest Contr. — World Review of Pest Control
- Wyo. Agr. Ext. Serv. Bull. — Wyoming Agricultural Extension Service Bulletin
- Wyo. Agr. Ext. Serv. Circ. — Wyoming Agricultural Extension Service Circular
- Z. Angew. Entomol. — Zeitschrift für Angewandte Entomologie
- Z. Naturforsch. Sect. C. Biosci. — Zeitschrift für Naturforschung Section C Biosciences
- Z. Pflanzenkr. Pflanzenschutz — Zeitschrift für Pflanzenkrankheiten und Pflanzenschutz
- Z. Vergl. Physiol. — Zeitschrift für Vergleichende Physiologie
- Zäst. Bilja — Zästita Bilja (Yugoslavia)

Subject Index

The structure of this index was generally patterned after the "Thesaurus of Entomology" (R. H. Foote, 1977, Entomol. Soc. Amer. Pub., Washington, D.C., 188p.) and our own "Hierarchical Code Descriptors" (SIRIC, 1978, printout, 148p.). The choice of code words and their sequence follow a logical order compatible with our coding system. The index, therefore,

follows no alphabetical order. The user is advised to scan through it and become familiar with its logic to use the bibliography efficiently.

The index is divided into two major sections: "I. The Insects" and "II. Protection Against the Insects and Their Economic Impact on Crops."

Section I, "The Insects," is divided into twelve very broad categories:

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Section II is divided into the following categories:

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Scope notes introducing the various subject categories will clarify the logic for including the papers under each heading. This subject index when used with the string of codes that follows each entry in the bibliography will help a user to narrow his or her search for relevant references.

I. THE INSECTS

This section includes subject matters that have the insects as the main object of study.

External Anatomy, Morphology

Includes descriptions of structures — all tagmata, appendices, internal and external organs, and apparatuses. Morphological descriptions of a strictly diagnostic value in taxonomy are under "Systematics, Taxonomy, Nomenclature."

769, 796, 797, 798, 815, 819, 821, 822, 823, 825, 828, 929, 934, 935, 936, 947, 985, 1051, 1120, 1121, 1194, 1195, 1262, 1316, 1353, 1388, 1417, 1434, 1591, 1609, 1632, 1703, 1737, 1744, 1767, 1783, 1807, 1879, 1880, 2013, 2100, 2125, 2142, 2435, 2436, 3327, 3329, 3403, 3404, 3565, 3566, 3567, 3592, 3794, 3823, 3853, 3896, 3897, 4138, 4156, 4169, 4299, 4374.

Systematics, Taxonomy, Nomenclature

Includes also evolution and speciation, synonymic lists, diagnostic descriptions, catalogues, and checklists.

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Life History and Habits

Includes both field and laboratory studies on the life cycle, phenology or seasonal life history, growth and development, biological rhythms (particularly related to overwintering), and feeding and oviposition habits.

38, 39, 63, 65, 82, 123, 138, 140, 143, 146, 148, 149, 150, 152, 157, 161, 162, 164, 172, 204, 215, 217, 248, 251, 277, 285, 286, 298, 318, 320, 332, 361, 362, 444, 449, 462, 478, 481, 482, 483, 486, 511, 531, 532, 533, 538, 544, 545, 551, 555, 574, 598, 615, 643, 646, 648, 670, 679, 680, 694, 696, 720, 734, 758, 761, 762, 772, 773, 774, 775, 779, 780, 781, 782, 790, 791, 792, 794, 796, 799, 839, 871, 910, 914, 916, 926, 927, 949, 950, 951, 956, 958, 960, 965, 966, 974, 983, 1011, 1016, 1018, 1019, 1025, 1041, 1052, 1071, 1081, 1100, 1109, 1110, 1113, 1114, 1128, 1129, 1153, 1158, 1170, 1171, 1172, 1177, 1194, 1195, 1200, 1201, 1204, 1206, 1213, 1236, 1248, 1262, 1263, 1274, 1282, 1284, 1296, 1317, 1319, 1356, 1366, 1381, 1382, 1392, 1398, 1405, 1417, 1426, 1428, 1429, 1436, 1438, 1441, 1448, 1463, 1534, 1535, 1572, 1573, 1576, 1587, 1589, 1591, 1592, 1597, 1607, 1608, 1609, 1610, 1611, 1612, 1613, 1614, 1618, 1623, 1626, 1627, 1629, 1651, 1652, 1653, 1674, 1685, 1686, 1694, 1699, 1704, 1705, 1730, 1737, 1739, 1751, 1781, 1783, 1787, 1796, 1803, 1806, 1807, 1813, 1814, 1854, 1876, 1883, 1951, 2012, 2013, 2018, 2027, 2068, 2069, 2092, 2093, 2113, 2122, 2130, 2131, 2132, 2183, 2184, 2194, 2196, 2198, 2199, 2208, 2218, 2259, 2264, 2267, 2274, 2278, 2279, 2281, 2282, 2285, 2294, 2302, 2325, 2326, 2336, 2385, 2386, 2387, 2388, 2395,

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Physiology and Biochemistry

Includes function of systems and organs, as well as metabolic, neural, and sensorial processes, at the organismic and suborganismic levels; also includes histology and cytology.

13, 41, 43, 47, 48, 49, 50, 51, 53, 54, 55, 247, 275, 278, 290, 358, 359, 360, 365, 366, 367, 368, 369, 374, 383, 538, 555, 633, 634, 635, 636, 637, 638, 639, 656, 672, 738, 739, 742, 744, 745, 746, 758, 791, 795, 797, 798, 799, 803, 804, 806, 807, 808, 809, 810, 811, 812, 813, 814, 816, 817, 818, 819, 821, 822, 823, 828, 897, 919, 929, 934, 935, 936, 940, 941, 943, 946, 947, 961, 1037, 1044, 1080, 1101, 1131, 1132, 1133, 1134, 1251, 1279, 1280, 1335, 1387, 1388, 1389, 1390, 1400, 1406, 1414, 1433, 1450, 1451, 1560, 1574, 1603, 1604, 1605, 1617, 1697, 1712, 1745, 1801, 1802, 1830, 1835, 1836, 1851, 1869, 1870, 1909, 1916, 1917, 1920, 1933, 2105, 2107, 2108, 2109, 2110, 2210, 2212, 2214, 2219, 2251, 2252, 2253, 2289, 2291, 2375, 2376, 2399, 2441, 2478, 2488, 2489, 2517, 2521, 2527, 2551, 2556, 2655, 2657, 2658, 2659, 2660, 2662, 2663, 2679, 2680, 2681, 2682, 2683, 2684, 2685, 2686, 2756, 2783, 2910, 3004, 3010, 3011, 3047, 3082, 3086, 3101, 3114, 3129, 3216, 3217, 3218, 3219, 3325, 3326, 3352, 3370, 3408, 3409, 3411, 3412, 3413, 3532, 3533, 3634, 3642, 3670, 3671, 3685, 3750, 3795, 3823, 3890, 3891, 3896, 3897, 3898, 3978, 3982,

3994, 4037, 4038, 4039, 4059, 4068, 4149, 4253, 4344, 4430, 4454, 4539, 4642, 4652, 4654, 4655, 4656, 4665, 4679, 4680, 4683, 4684, 4685, 4687, 4688, 4690, 4691, 4698, 4699, 4700, 4702, 4939, 4963, 4964, 4970, 4998, 4999, 5002, 5036, 5037, 5040, 5042, 5043, 5063, 5154, 5169.

Toxicology

Includes mode of action of insecticides, general toxicological effects, determinations of LD 50's, and insecticide chemistry. Papers dealing with dosage recommendations are listed only under "Chemical Control."

14, 20, 22, 23, 25, 28, 34, 35, 36, 37, 118, 119, 120, 122, 228, 245, 247, 287, 310, 358, 359, 537, 553, 554, 575, 578, 595, 596, 606, 607, 613, 614, 618, 642, 672, 698, 699, 701, 702, 703, 704, 705, 706, 707, 709, 711, 713, 843, 850, 851, 854, 856, 857, 878, 930, 933, 1044, 1053, 1054, 1144, 1191, 1399, 1404, 1413, 1518, 1621, 1681, 1709, 1710, 1711, 1718, 1719, 1780, 1808, 1837, 1838, 1843, 1844, 1845, 1848, 1940, 1950, 1958, 1967, 1995, 2010, 2045, 2046, 2057, 2061, 2062, 2107, 2167, 2168, 2249, 2250, 2401, 2403, 2407, 2516, 2522, 2548, 2552, 2738, 2742, 2822, 2847, 2898, 2899, 2904, 2951, 3022, 3096, 3097, 3128, 3302, 3304, 3306, 3307, 3308, 3309, 3310, 3311, 3312, 3313, 3370, 3557, 3617, 3629, 3630, 3631, 3632, 3633, 3634, 3635, 3636, 3637, 3642, 3643, 3644, 3770, 3783, 3795, 3871, 3882, 3999, 4000, 4037, 4042, 4049, 4075, 4260, 4386, 4422, 4676, 4677, 4692, 4696, 4785, 4857, 4886, 4887, 4888, 4889, 5020, 5021, 5022, 5023, 5024, 5025, 5028, 5031, 5038, 5039, 5041, 5042, 5044, 5045, 5046, 5049, 5051, 5053, 5055, 5056, 5057, 5098, 5142, 5146, 5168.

Insect Pathology

Includes pathogens and pathological reactions of the hosts. The use of disease organisms in population regulation falls under "Biological Control — Pathogens."

10, 11, 12, 13, 425, 946, 1439, 1440, 1593, 1594, 1595, 1697, 1743, 1771, 1802, 1830, 1902, 1903, 1904, 1960, 1965, 1966, 1969, 2211, 2213, 2304, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2348, 2350, 2351, 2358, 2359, 2360, 2361, 2363, 2365, 2366, 2367, 2374, 2507, 2526, 2527, 2528, 2549, 2550, 2556, 2568, 2593, 2637, 2659, 2660, 2661, 2749, 2841, 2930, 2932, 3123, 3205, 3213, 3997, 4027, 4028, 4052, 4053, 4054, 4055, 4056, 4057, 4058, 4060, 4061, 4118, 4119, 4120, 4121, 4131, 4187, 4274, 4280, 4296, 4321, 4322, 4323, 4324, 4389, 4398, 4461, 4471, 4502, 4503, 4623, 4624, 4625, 4626, 4661, 4827, 4850, 5085, 5086, 5118, 5143, 5147, 5159, 5176.

Genetics

Includes only basic genetic studies. Papers on enzyme polymorphism may be listed here as well as under "Population Studies."

236, 1632, 2187, 2188, 2257, 2496, 2519, 2700, 2709, 2936, 3371, 3372, 3373, 3374, 3468, 3469, 3631, 3688, 3689, 3751, 4038, 4040, 4041, 4042, 4149, 4150, 4885, 5155, 5156.

Behavior

Includes descriptive ethology as well as experimental behavior; host selection, feeding, oviposition, movement (flight behavior of adults and locomotory behavior of larvae), general orientation, and sexual behavior (including pheromone communication).

27, 39, 41, 43, 44, 45, 46, 47, 52, 55, 61, 117, 123, 220, 221, 231, 241, 312, 317, 318, 319, 320, 325, 327, 331, 332, 337, 343, 344, 365, 438, 479, 486, 497, 512, 531, 532, 566, 592, 594, 674, 675, 696, 758, 776, 791, 792, 793, 794, 795, 796, 801, 802, 803, 804, 805, 806, 807, 808, 810, 811, 812, 813, 814, 817, 818, 819, 821, 822, 823, 825, 826, 827, 828, 863, 869, 969, 995, 1024, 1075, 1208, 1232, 1233, 1234, 1246, 1251, 1262, 1263, 1264, 1274, 1277, 1278, 1280, 1316, 1319, 1383, 1384, 1397, 1405, 1406, 1407, 1408, 1516, 1517, 1554, 1580, 1588, 1603, 1604, 1605, 1617, 1645, 1655, 1656, 1664, 1712, 1713, 1723, 1751, 1770, 1777, 1779, 1821, 1822, 1826, 1835, 1861, 1863, 1869, 1870, 1874, 1875, 1876, 1877, 1918, 1919, 1951, 1957, 1967, 2003, 2008, 2106, 2138, 2150, 2152, 2154, 2156, 2159, 2161, 2162, 2164, 2165, 2186, 2187, 2188, 2198, 2248, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2288, 2289, 2290, 2291, 2298, 2302, 2321, 2332, 2387, 2418, 2419, 2435, 2436, 2439, 2443, 2476, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2497, 2512, 2513, 2521, 2607, 2621, 2626, 2627, 2678, 2690, 2691, 2692, 2696, 2704, 2708, 2709, 2755, 2757, 2792, 2794, 2802, 2803, 2806, 2811, 2823, 2843, 2910, 2918, 2920, 2963, 2964, 2965, 2967, 2968, 2969, 2971, 2972, 3002, 3014, 3018, 3035, 3082, 3084, 3085, 3086, 3087, 3089, 3090, 3091, 3101, 3114, 3115, 3116, 3120, 3136, 3183, 3194, 3198, 3203, 3248, 3289, 3303, 3305, 3357, 3372, 3382, 3445, 3473, 3580, 3582, 3593, 3594, 3600, 3601, 3602, 3604, 3607, 3609, 3610, 3619, 3685, 3720, 3731, 3751, 3753, 3758, 3762, 3804, 3844, 3853, 3864, 3868, 3869, 3897, 3898, 3900, 4035, 4039, 4093, 4094, 4095, 4098, 4099, 4128, 4147, 4234, 4236, 4239, 4247, 4267, 4292, 4302, 4310, 4313, 4314, 4315, 4343, 4345, 4346, 4430, 4481, 4522, 4523, 4528, 4622, 4631, 4642, 4663, 4664, 4797, 4824, 4828, 4829, 4881, 4980, 4996, 4999, 5002, 5003, 5004, 5047, 5097, 5107, 5158.

Ecology

Includes mostly autoecological papers dealing with the effect of physical environmental factors (temperature, photoperiod, humidity, etc.) on growth, development, survival, etc., of the species. The effects of biotic agents are listed under "Population Studies."

8, 24, 27, 30, 38, 39, 58, 59, 87, 124, 220, 241, 268, 325, 331, 341, 344, 374, 434, 435, 436, 438, 456, 460, 479, 512, 567, 570, 590, 615, 652, 680, 730, 758, 761, 762, 790, 791, 794, 801, 813, 816, 869, 883, 952, 953, 1029, 1042, 1197, 1203, 1235, 1251, 1267, 1277, 1278, 1305, 1306, 1405, 1450, 1516, 1517, 1560, 1607, 1613, 1640, 1642, 1651, 1652, 1653, 1658, 1674, 1704, 1772, 1821, 1822, 1824, 1953, 1955, 2003, 2007, 2018, 2063, 2069, 2106, 2153, 2160, 2171, 2187, 2188, 2207, 2215, 2244, 2255, 2256, 2257, 2285, 2318, 2321, 2332, 2339, 2384, 2387, 2388, 2390, 2394, 2395, 2397, 2418, 2419, 2500, 2563, 2595, 2634, 2690, 2692, 2694, 2699, 2704, 2708, 2725, 2739, 2793, 2794, 2806, 2811, 2813, 2823, 2846, 2889, 2890, 2929, 2964, 2965, 2966, 2967, 2969, 2970, 2971, 2972, 3010, 3012, 3013, 3014, 3070, 3122, 3124, 3136, 3179, 3240, 3248, 3258, 3275, 3278, 3284, 3289, 3303, 3305, 3328, 3330, 3344, 3357, 3384, 3394, 3406, 3407, 3458, 3478, 3532, 3533, 3593, 3594, 3598, 3600, 3601, 3602, 3604, 3607, 3610, 3611, 3627, 3714, 3718, 3727, 3735, 3775, 3864, 3868, 3869, 3883, 3977, 3978, 4014, 4038, 4042, 4076, 4139, 4145, 4147, 4195, 4198, 4209, 4231, 4267, 4270, 4287, 4291, 4292, 4293, 4326, 4352, 4353, 4354, 4356, 4568, 4571, 4622, 4628, 4629, 4630, 4631, 4664, 4672, 4748, 4796, 4824, 4828, 4829, 4864, 4881, 4908, 4945, 4949, 4955, 4980, 4996, 5060, 5087, 5094, 5097, 5128, 5131, 5154.

Population Studies

Includes population dynamics and modeling and effect of biotic factors on growth, development, survival, etc., of the species. The use of biotic agents in population regulation falls under "Biological Control."

18, 27, 33, 42, 59, 87, 134, 212, 221, 244, 257, 259, 291, 311, 317, 337, 349, 374, 397, 456, 503, 525, 547, 549, 560, 564, 566, 567, 576, 582, 583, 587, 588, 609, 616, 617, 652, 682, 683, 731, 732, 765, 824, 827, 841, 848, 849, 861, 863, 894, 1000, 1209, 1213, 1235, 1247, 1253, 1267, 1290, 1347, 1442, 1445, 1446, 1465, 1466, 1495, 1509, 1558, 1575, 1619, 1635, 1637, 1638, 1640, 1641, 1642, 1643, 1645, 1649, 1655, 1656, 1685, 1707, 1721, 1772, 1774, 1775, 1776, 1790, 1794, 1823, 1824, 1828, 1842, 1862, 1877, 1926, 1928, 1957, 2003, 2008, 2086, 2087, 2089, 2090, 2153, 2155, 2169, 2170, 2171, 2176, 2193, 2195, 2197, 2215, 2288, 2449, 2450, 2460, 2476, 2494, 2558, 2573, 2589, 2591, 2594, 2596, 2597, 2608, 2610, 2612, 2613, 2614, 2642, 2643, 2644, 2678, 2699, 2704, 2705, 2708, 2795, 2798, 2799, 2805, 2811, 2813, 2893, 2964, 2965, 2968, 3002, 3022, 3076, 3090, 3120, 3124, 3136, 3146, 3164, 3179, 3181, 3303, 3305, 3328, 3330, 3345, 3353, 3357, 3361, 3371, 3374, 3406, 3407, 3426, 3438, 3453, 3490, 3564, 3582, 3598, 3600, 3610, 3618, 3619, 3620, 3621, 3720, 3727, 3745, 3775, 3806, 3812, 3820, 3851, 3866, 3870, 3901, 3942, 3946, 3947, 3993, 4018, 4022, 4033, 4041, 4043, 4063, 4076, 4077, 4079, 4082, 4091, 4126, 4139, 4144, 4145, 4146, 4148, 4150, 4185, 4194, 4209, 4211, 4213, 4231, 4235, 4237, 4238, 4240, 4241, 4242, 4243, 4248, 4268, 4270, 4290, 4291, 4300, 4342, 4343, 4350, 4351, 4352, 4353, 4354, 4355, 4356, 4394, 4450, 4451, 4452, 4467, 4468, 4486, 4488, 4499, 4520, 4534, 4622, 4644, 4711, 4713, 4728, 4730, 4977, 5032, 5060, 5091, 5092, 5093, 5149, 5151, 5165, 5174.

Host Records, Distribution

Includes papers whose main value is to provide information on host relationships or geographic distribution of the species. Pest status and seasonal abundance are also included.

60, 131, 132, 135, 136, 137, 139, 147, 151, 166, 215, 266, 267, 285, 286, 302, 305, 306, 307, 308, 309, 313, 320, 382, 385, 386, 404, 414, 445, 450, 452, 454, 455, 458, 459, 462, 463, 464, 465, 471, 472, 473, 474, 529, 530, 545, 551, 559, 581, 582, 598, 616, 640, 647, 651, 653, 676, 679, 681, 693, 697, 776, 777, 778, 864, 888, 892, 914, 926, 927, 954, 955, 956, 957, 958, 969, 986, 987, 989, 990, 992, 993, 994, 996, 1013, 1014, 1015, 1025, 1040, 1052, 1066, 1067, 1068, 1069, 1071, 1076, 1100, 1113, 1114, 1117, 1120, 1121, 1145, 1153, 1155, 1162, 1163, 1164, 1165, 1166, 1169, 1173, 1178, 1179, 1180, 1181, 1182, 1183, 1194, 1195, 1203, 1215, 1216, 1283, 1321, 1322, 1323, 1339, 1342, 1365, 1395, 1396, 1434, 1435, 1436, 1437, 1438, 1441, 1453, 1463, 1514, 1515, 1524, 1534, 1535, 1555, 1556, 1557, 1573, 1588, 1589, 1591, 1596, 1598, 1607, 1609, 1610, 1611, 1613, 1618, 1622, 1624, 1625, 1657, 1686, 1695, 1700, 1704, 1730, 1732, 1734, 1735, 1736, 1740, 1741, 1742, 1753, 1754, 1755, 1781, 1782, 1784, 1804, 1805, 1806, 1809, 1810, 1813, 1823, 1826, 1871, 1878, 1883, 1884, 1885, 1887, 1888, 1889, 1891, 1892, 1897, 1899, 1900, 1901, 1937, 1938, 1961, 1962, 1963, 1964, 2013, 2080, 2083, 2091, 2094, 2101, 2112, 2126, 2127, 2128, 2129, 2142, 2203, 2206, 2208, 2228, 2230, 2238, 2240, 2241, 2242, 2259, 2278, 2280, 2281, 2282, 2283, 2295, 2297, 2315, 2317, 2323, 2324, 2326, 2328, 2378, 2442, 2475, 2477, 2502, 2503, 2505, 2530, 2534, 2535, 2544, 2545, 2546, 2547, 2557, 2566, 2574, 2578, 2602, 2604, 2605, 2606, 2611, 2616, 2621, 2625, 2636, 2669, 2676, 2687, 2688, 2698, 2708,

2729, 2735, 2745, 2746, 2748, 2750, 2810, 2836, 2837, 2839, 2844, 2845, 2846, 2848, 2850, 2870, 2879, 2885, 2901, 2940, 2941, 2942, 2943, 2944, 2945, 2946, 2947, 2953, 2954, 2956, 2957, 2958, 2976, 2984, 2989, 2990, 3050, 3070, 3108, 3109, 3110, 3113, 3121, 3125, 3126, 3127, 3132, 3167, 3200, 3202, 3232, 3233, 3235, 3236, 3240, 3243, 3247, 3263, 3264, 3275, 3276, 3285, 3286, 3328, 3330, 3331, 3340, 3341, 3342, 3353, 3364, 3394, 3405, 3414, 3419, 3421, 3423, 3424, 3425, 3441, 3443, 3444, 3510, 3511, 3517, 3530, 3534, 3535, 3545, 3547, 3555, 3565, 3566, 3602, 3605, 3612, 3625, 3626, 3646, 3648, 3657, 3658, 3660, 3663, 3686, 3687, 3700, 3703, 3704, 3707, 3712, 3714, 3730, 3736, 3746, 3772, 3773, 3777, 3784, 3825, 3826, 3827, 3828, 3829, 3836, 3838, 3842, 3844, 3846, 3859, 3860, 3861, 3862, 3863, 3865, 3906, 3923, 3924, 3925, 3927, 3929, 3930, 3931, 3932, 3933, 3950, 3954, 3955, 3960, 3965, 3966, 3968, 3976, 3998, 4005, 4008, 4029, 4030, 4031, 4034, 4048, 4083, 4086, 4087, 4088, 4089, 4104, 4105, 4117, 4123, 4140, 4154, 4170, 4172, 4176, 4178, 4190, 4192, 4195, 4196, 4197, 4199, 4200, 4201, 4202, 4203, 4204, 4216, 4217, 4219, 4220, 4222, 4223, 4224, 4228, 4229, 4235, 4236, 4240, 4243, 4254, 4261, 4276, 4282, 4290, 4298, 4371, 4372, 4385, 4400, 4401, 4407, 4408, 4409, 4410, 4411, 4412, 4413, 4414, 4415, 4418, 4420, 4426, 4433, 4445, 4450, 4453, 4457, 4458, 4459, 4473, 4476, 4477, 4478, 4479, 4490, 4495, 4508, 4510, 4512, 4514, 4515, 4516, 4520, 4521, 4527, 4540, 4541, 4545, 4546, 4547, 4548, 4549, 4550, 4551, 4552, 4553, 4554, 4555, 4578, 4586, 4640, 4641, 4646, 4648, 4659, 4663, 4672, 4709, 4712, 4737, 4763, 4764, 4774, 4779, 4800, 4802, 4803, 4804, 4810, 4811, 4812, 4817, 4819, 4820, 4821, 4825, 4834, 4842, 4859, 4931, 4932, 4941, 4942, 4948, 4954, 4959, 4960, 4976, 4980, 4990, 4991, 4992, 4999, 5010, 5012, 5013, 5014, 5071, 5072, 5073, 5074, 5075, 5083, 5092, 5114, 5121, 5122.

Methods

Includes papers primarily dealing with procedures, methodology, and equipment.

Sampling and Trapping (sampling methods and trap design): 56, 58, 67, 79, 115, 116, 218, 231, 503, 527, 580, 586, 587, 588, 756, 848, 849, 877, 1031, 1079, 1099, 1150, 1207, 1208, 1209, 1210, 1211, 1239, 1240, 1347, 1442, 1446, 1468, 1485, 1495, 1506, 1507, 1721, 1725, 1774, 1776, 1777, 1790, 1793, 1794, 1798, 1799, 1822, 1824, 1928, 1956, 1970, 2011, 2035, 2043, 2085, 2086, 2087, 2144, 2145, 2146, 2149, 2151, 2154, 2155, 2156, 2157, 2159, 2160, 2162, 2163, 2165, 2169, 2172, 2176, 2197, 2244, 2246, 2248, 2288, 2329, 2607, 2608, 2610, 2612, 2613, 2614, 2643, 2644, 2674, 2690, 2691, 2692, 2716, 2797, 2805, 2811, 2843, 2873, 2949, 2965, 2967, 2984, 2991, 2998, 3120, 3303, 3353, 3361, 3540, 3580, 3582, 3618, 3620, 3621, 3851, 3866, 3870, 3941, 3946, 4022, 4032, 4043, 4078, 4080, 4127, 4128, 4129, 4185, 4240, 4241, 4242, 4243, 4248, 4268, 4270, 4273, 4300, 4301, 4329, 4330, 4339, 4343, 4345, 4346, 4486, 4527, 4534, 4622, 4708, 4711, 4713, 4869, 4988, 5026, 5032, 5091, 5092, 5093, 5106, 5151.

Rearing (rearing equipment and preparation of artificial media): 289, 290, 315, 437, 446, 613, 614, 629, 632, 633, 634, 635, 637, 638, 736, 737, 740, 741, 743, 800, 896, 932, 1418, 1447, 1694, 1696, 1708, 1729, 1787, 1828, 1872, 1873, 1912, 1913, 2019, 2030, 2031, 2038, 2039, 2040, 2041, 2153, 2161, 2335, 2336, 2340, 2355, 2387, 2495, 2811, 2878, 3033, 3140, 3218, 3518, 3519, 3520, 3521, 3560, 3603, 3748, 3749, 3750, 3754, 3755, 3756, 3757, 3875, 3994, 4074, 4096, 4269, 4272, 4296, 4331, 4395, 4454, 4460, 4503, 4652, 4653, 4655, 4656, 4657, 4694, 4747, 4768, 4782, 4938, 4939, 5103, 5140.

Other Methods (methods used in biological, behavioral, ecological, and physiological studies): 55, 240, 244, 386, 397, 488, 503, 744, 803, 804, 806, 817, 904, 931, 1001, 1151, 1266, 1277, 1278, 1343, 1570, 1659, 1660, 1662, 1713, 1800, 1828, 2011, 2016, 2030, 2031, 2037, 2201, 2245, 2276, 2277, 2401, 2488, 2494, 2598, 2626, 2627, 3046, 3083, 3163, 3212, 3220, 3531, 3548, 3549, 3659, 3757, 3890, 4233, 4245, 4288, 4300, 4301, 4310, 4344, 4378, 4429, 4460, 4461, 4714, 4797, 4936, 4937, 5005, 5104, 5149.

II. PROTECTION AGAINST THE INSECTS AND THEIR ECONOMIC IMPACT ON CROPS

This section includes papers on control methods and their integration into pest management systems. Most control categories are also subdivided into corn, cotton, soybean, tobacco, ornamentals, vegetable crops, and other crops.

Biological Control

Under this heading are included papers on general biological control approaches and on specific biological control agents (parasitoids, predators, and pathogens). Papers under "Parasitoids" include naturally occurring as well as manipulated parasitism and true parasites such as nematodes. Papers under "Predators" include naturally occurring as well as manipulated predation. Papers under "Pathogens" include microbial control and the role of pathogens in pest population regulation (basic research on pathogens is included under "Insect Pathology").

BIOLOGICAL CONTROL — GENERAL

1, 82, 103, 104, 105, 209, 213, 217, 234, 318, 363, 364, 485, 611, 641, 682, 763, 764, 766, 767, 887, 893, 910, 973, 1057, 1058, 1059, 1154, 1160, 1193, 1194, 1195, 1213, 1221, 1227, 1262, 1348, 1433, 1438, 1443, 1444, 1445, 1463, 1465, 1466, 1599, 1601, 1602, 1654, 1864, 1910, 1926, 1953, 1955, 2137, 2196, 2229, 2235, 2278, 2279, 2349, 2384, 2395, 2451, 2453, 2454, 2457, 2459, 2470, 2507, 2646, 2701, 2794, 2796, 2820, 2845, 2935, 2936, 3077, 3107, 3263, 3482, 3496, 3714, 3718, 3743, 3821, 3963, 4017, 4062, 4164, 4207, 4228, 4229, 4598, 4634, 4636, 4782, 4916, 4945, 4953, 4955, 4991, 5128.

Parasitoids: 2, 77, 78, 80, 89, 144, 164, 167, 261, 263, 264, 265, 314, 321, 331, 365, 366, 367, 368, 369, 384, 409, 410, 411, 413, 421, 429, 430, 466, 467, 469, 470, 486, 511, 539, 540, 541, 543, 560, 565, 568, 590, 628, 630, 631, 636, 659, 660, 665, 683, 684, 685, 686, 687, 688, 689, 690, 691, 729, 730, 733, 753, 754, 885, 886, 889, 913, 938, 944, 945, 963, 964, 1047, 1056, 1070, 1072, 1131, 1132, 1133, 1134, 1141, 1142, 1143, 1147, 1148, 1201, 1241, 1338, 1385, 1422, 1513, 1519, 1543, 1552, 1559, 1561, 1597, 1613, 1623, 1639, 1648, 1650, 1704, 1717, 1725, 1768, 1769, 1789, 1792, 1796, 1813, 1820, 1849, 1850, 1874, 1924, 1929, 1930, 1931, 1932, 1933, 2007, 2020, 2063, 2115, 2116, 2117, 2148, 2166, 2173, 2205, 2207, 2220, 2225, 2226, 2227, 2294, 2305, 2306, 2326, 2382, 2383, 2387, 2415, 2416, 2417, 2464, 2478, 2489, 2490, 2491, 2492, 2517, 2550, 2551, 2565, 2591, 2594, 2597, 2633, 2635, 2640, 2641, 2648, 2668, 2689, 2695, 2703, 2762, 2763, 2764, 2765, 2766, 2767, 2768, 2769, 2770, 2771, 2772, 2773, 2774, 2776, 2777, 2778, 2779, 2780, 2781, 2782, 2783, 2784, 2785, 2787, 2819, 2821, 2824, 2825, 2826, 2831, 2832, 2833, 2844, 2900, 2930, 2956, 2957,

2958, 2982, 2984, 2997, 3003, 3034, 3095, 3098, 3143, 3147, 3166, 3208, 3214, 3230, 3231, 3232, 3233, 3245, 3259, 3260, 3261, 3281, 3325, 3328, 3330, 3362, 3366, 3367, 3369, 3376, 3377, 3378, 3379, 3388, 3390, 3392, 3393, 3395, 3396, 3416, 3417, 3426, 3434, 3435, 3436, 3439, 3440, 3453, 3454, 3497, 3498, 3520, 3534, 3535, 3544, 3545, 3556, 3562, 3605, 3607, 3611, 3616, 3627, 3628, 3637, 3701, 3715, 3719, 3722, 3723, 3724, 3735, 3809, 3815, 3817, 3818, 3819, 3822, 3824, 3842, 3849, 3858, 3865, 3867, 3889, 3963, 3989, 4007, 4009, 4010, 4033, 4076, 4080, 4081, 4123, 4133, 4135, 4184, 4186, 4193, 4227, 4236, 4243, 4333, 4335, 4336, 4357, 4358, 4359, 4366, 4370, 4403, 4406, 4410, 4415, 4417, 4435, 4442, 4449, 4453, 4473, 4490, 4506, 4509, 4584, 4627, 4633, 4635, 4647, 4649, 4650, 4668, 4672, 4678, 4679, 4680, 4681, 4682, 4683, 4684, 4685, 4686, 4687, 4688, 4689, 4690, 4691, 4693, 4694, 4695, 4697, 4699, 4701, 4702, 4712, 4729, 4732, 4733, 4760, 4789, 4811, 4830, 4864, 4931, 4938, 4944, 4949, 4950, 4951, 4965, 4966, 4967, 4968, 4969, 4970, 4989, 5009, 5080, 5083, 5095, 5102, 5120, 5121, 5124, 5125, 5129, 5144.

Predators: 1, 16, 164, 269, 316, 334, 337, 375, 376, 377, 422, 423, 426, 466, 486, 511, 548, 576, 577, 590, 604, 621, 654, 665, 673, 683, 691, 692, 733, 755, 757, 838, 859, 1070, 1081, 1123, 1197, 1201, 1220, 1237, 1293, 1319, 1338, 1411, 1412, 1419, 1420, 1421, 1422, 1423, 1434, 1452, 1561, 1571, 1597, 1634, 1635, 1636, 1639, 1644, 1704, 1717, 1728, 1781, 1812, 1813, 1929, 1939, 1954, 2004, 2063, 2068, 2069, 2097, 2180, 2204, 2234, 2272, 2327, 2362, 2455, 2456, 2460, 2500, 2501, 2510, 2515, 2529, 2571, 2573, 2579, 2634, 2648, 2702, 2775, 2811, 2818, 2821, 2828, 2829, 2830, 2832, 2833, 2849, 2871, 2956, 2957, 2958, 2984, 2995, 3012, 3034, 3038, 3046, 3071, 3106, 3220, 3230, 3231, 3233, 3256, 3270, 3279, 3287, 3288, 3330, 3350, 3351, 3353, 3368, 3388, 3398, 3399, 3402, 3470, 3474, 3522, 3555, 3556, 3561, 3562, 3605, 3607, 3611, 3627, 3715, 3716, 3721, 3723, 3724, 3761, 3763, 3806, 3807, 3809, 3812, 3813, 3814, 3815, 3816, 3817, 3818, 3819, 3820, 3822, 3842, 3865, 3867, 3905, 3928, 3947, 4018, 4019, 4020, 4076, 4080, 4082, 4084, 4123, 4135, 4152, 4153, 4185, 4186, 4227, 4327, 4340, 4341, 4399, 4403, 4423, 4425, 4432, 4451, 4452, 4453, 4473, 4480, 4490, 4535, 4537, 4584, 4633, 4635, 4637, 4638, 4644, 4645, 4672, 4712, 4729, 4770, 4771, 4773, 4776, 4778, 4781, 4789, 4798, 4811, 4847, 4848, 4861, 4862, 4863, 4864, 4865, 4866, 4949, 4950, 4951, 4952, 4965, 4966, 4989, 5003, 5129, 5130, 5168, 5174, 5177.

Pathogens: 70, 71, 72, 73, 74, 75, 76, 81, 125, 126, 127, 128, 205, 210, 225, 246, 355, 416, 417, 418, 419, 420, 421, 424, 425, 619, 620, 656, 657, 658, 659, 661, 710, 714, 715, 716, 717, 723, 832, 862, 908, 922, 923, 924, 925, 928, 931, 937, 939, 942, 975, 976, 982, 1001, 1048, 1087, 1088, 1089, 1090, 1103, 1104, 1105, 1107, 1124, 1151, 1222, 1223, 1326, 1327, 1328, 1329, 1330, 1331, 1332, 1333, 1334, 1335, 1336, 1338, 1486, 1487, 1489, 1490, 1491, 1492, 1493, 1494, 1496, 1497, 1510, 1511, 1536, 1537, 1600, 1633, 1697, 1698, 1714, 1724, 1802, 1830, 1867, 1868, 1968, 1985, 2026, 2139, 2140, 2141, 2211, 2273, 2292, 2293, 2307, 2318, 2333, 2334, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2356, 2357, 2359, 2360, 2361, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2383, 2421, 2426, 2431, 2432, 2463, 2522, 2526, 2533, 2549, 2565, 2568, 2572, 2582, 2589, 2593, 2637, 2672, 2703, 2730, 2841, 2842, 2932, 2956, 2957, 2958, 2993, 2994, 3054, 3055, 3056, 3057, 3058, 3063, 3064, 3065, 3073, 3074, 3078, 3081, 3095, 3102, 3103, 3123, 3156, 3160, 3189, 3191, 3204, 3206, 3212, 3213, 3269, 3365, 3391, 3529, 3531, 3585,

3624, 3702, 3725, 3726, 3760, 3774, 3809, 3843, 3865, 3867, 3876, 3902, 3903, 3904, 3961, 3962, 3964, 3988, 4013, 4097, 4160, 4184, 4279, 4283, 4284, 4285, 4286, 4288, 4396, 4434, 4435, 4535, 4621, 4626, 4627, 4632, 4707, 4785, 4789, 4867, 5017, 5035, 5040, 5058, 5064, 5084, 5085, 5101, 5115, 5116, 5117, 5132, 5152, 5162, 5173, 5178.

BIOLOGICAL CONTROL — CORN

318, 1193, 1262, 2229, 2235, 2278, 2395, 2453, 2454, 2457, 2701, 2845, 3714, 4062, 4228, 4229, 4598, 4916.

Parasitoids: 164, 167, 264, 265, 331, 410, 429, 430, 486, 511, 1142, 1201, 1519, 1559, 1597, 1613, 1704, 1717, 1725, 1768, 1789, 1813, 1820, 2020, 2166, 2207, 2326, 2387, 2689, 2695, 2768, 2776, 2844, 2900, 3034, 3166, 3208, 3214, 3281, 3330, 3388, 3390, 3392, 3416, 3534, 3535, 3545, 3562, 3605, 3607, 3611, 3824, 3867, 3889, 4184, 4227, 4403, 4668, 4712, 4789, 4811, 4864, 4966, 4989, 5083, 5144.

Predators: 164, 316, 334, 337, 486, 511, 548, 621, 1201, 1237, 1319, 1434, 1597, 1704, 1717, 1728, 1812, 1813, 2068, 2069, 2327, 3012, 3034, 3038, 3106, 3256, 3330, 3388, 3402, 3474, 3522, 3561, 3562, 3605, 3607, 3611, 3867, 4227, 4340, 4403, 4712, 4773, 4776, 4778, 4781, 4789, 4811, 4864, 4966, 4989, 5003.

Pathogens: 924, 1867, 1968, 2346, 2357, 2372, 2421, 2426, 2432, 2568, 2582, 2672, 2841, 3204, 3391, 3760, 3867, 4184, 4396, 4434, 4789, 5017, 5058, 5101, 5178.

BIOLOGICAL CONTROL — COTTON

104, 105, 209, 217, 234, 363, 364, 611, 641, 682, 763, 764, 766, 767, 887, 893, 973, 1160, 1193, 1227, 1443, 1444, 1445, 1463, 1465, 1466, 1910, 1926, 1953, 1955, 2137, 2196, 2229, 2278, 2279, 2384, 2395, 2451, 2453, 2454, 2457, 2459, 2470, 2701, 2794, 2796, 2820, 2845, 2935, 3077, 3107, 3263, 3482, 3714, 3821, 4017, 4062, 4207, 4598, 4634, 4636, 4782, 4945, 4953, 4955, 4991, 5128.

Parasitoids: 89, 261, 263, 409, 410, 411, 430, 469, 486, 539, 560, 565, 590, 665, 683, 684, 690, 691, 730, 733, 885, 886, 889, 1142, 1147, 1148, 1241, 1543, 1561, 1613, 1639, 1650, 1717, 1789, 1792, 1796, 1813, 1820, 1874, 1924, 2063, 2148, 2294, 2387, 2416, 2591, 2594, 2703, 2763, 2765, 2766, 2767, 2776, 2780, 2819, 2821, 2825, 2826, 2832, 2833, 2844, 2956, 2957, 2958, 3245, 3330, 3362, 3416, 3426, 3434, 3435, 3436, 3439, 3440, 3453, 3454, 3534, 3535, 3556, 3627, 3809, 3815, 3817, 3818, 3819, 3822, 3842, 3849, 3889, 4076, 4080, 4081, 4133, 4135, 4184, 4357, 4358, 4359, 4370, 4435, 4442, 4453, 4633, 4635, 4668, 4672, 4729, 4789, 4864, 4944, 4949, 4950, 4951, 4965, 5080, 5095, 5129.

Predators: 269, 422, 423, 426, 486, 576, 577, 590, 665, 683, 691, 692, 733, 755, 757, 838, 859, 1123, 1197, 1220, 1293, 1411, 1412, 1561, 1634, 1635, 1636, 1639, 1644, 1717, 1781, 1813, 1954, 2004, 2063, 2097, 2180, 2204, 2455, 2456, 2460, 2501, 2515, 2529, 2571, 2573, 2579, 2634, 2702, 2811, 2818, 2821, 2828, 2829, 2830, 2832, 2833, 2849, 2871, 2956, 2957, 2958, 3012, 3071, 3106, 3330, 3350, 3353, 3402, 3474, 3556, 3627, 3761, 3763, 3806, 3807, 3809, 3812, 3813, 3814, 3815, 3816, 3817, 3818, 3819, 3822, 3842, 3947, 4018, 4019, 4020, 4076, 4080, 4082, 4135, 4152, 4153, 4185, 4327, 4399, 4451, 4452, 4453, 4480, 4633, 4635, 4637, 4638, 4644, 4645, 4672, 4729, 4789, 4847, 4848, 4861, 4862, 4863, 4864, 4865, 4866, 4949, 4950, 4951, 4952, 4965, 5129, 5168, 5174, 5177.

Pathogens: 73, 74, 125, 126, 127, 225, 246, 424, 710, 714,

922, 923, 924, 1048, 1087, 1088, 1089, 1090, 1124, 1151, 1326, 1489, 1490, 1491, 1493, 1494, 1496, 1497, 1536, 1600, 1633, 1867, 1985, 2273, 2334, 2346, 2356, 2357, 2371, 2377, 2572, 2589, 2593, 2703, 2841, 2956, 2957, 2958, 3054, 3055, 3056, 3057, 3058, 3063, 3064, 3065, 3078, 3081, 3269, 3365, 3529, 3585, 3809, 3988, 4184, 4283, 4284, 4285, 4286, 4435, 4621, 4632, 4785, 4789, 5084, 5085, 5115, 5116, 5117, 5178.

BIOLOGICAL CONTROL — SOYBEAN

213, 1213, 1227, 1864, 2196, 2646, 2796, 3743.

Parasitoids: 314, 321, 2387, 2773, 2776, 3003, 3627, 3815, 3867, 3889, 4184, 4864.

Predators: 375, 376, 377, 2362, 2995, 3287, 3288, 3627, 3815, 3867, 4535, 4537, 4864.

Pathogens: 419, 862, 1537, 1633, 1698, 2365, 2366, 2367, 2368, 2369, 2370, 2522, 3081, 3867, 4184, 4279, 4535, 5084, 5115, 5173, 5178.

BIOLOGICAL CONTROL — TOBACCO

82, 910, 1193, 2845, 3714, 3718, 4062.

Parasitoids: 913, 944, 945, 1141, 1143, 1422, 1623, 1725, 1813, 1820, 1849, 1850, 2382, 2464, 2591, 2594, 2648, 2668, 2765, 2779, 2982, 3003, 3230, 3231, 3232, 3233, 3330, 3534, 3535, 3722, 3723, 3724, 3815, 3867, 4584, 4672, 4830, 4864, 4966.

Predators: 1081, 1419, 1420, 1421, 1422, 1423, 1813, 2648, 3230, 3231, 3233, 3330, 3555, 3721, 3723, 3724, 3815, 3867, 3928, 4341, 4584, 4672, 4864, 4966.

Pathogens: 908, 1103, 1326, 1633, 1724, 2346, 2463, 2841, 3189, 3191, 3725, 3726, 3867, 5178.

BIOLOGICAL CONTROL — ORNAMENTALS

4164.

Parasitoids: No citations retrieved.

Predators: No citations retrieved.

Pathogens: No citations retrieved.

BIOLOGICAL CONTROL — VEGETABLE CROPS

1348, 1438, 1654, 2935, 3496, 3714, 4164.

Parasitoids: 540, 1613, 1820, 2173, 2594, 2768, 2984, 3003, 3143, 3147, 3390, 3393, 3395, 3396, 3735, 3815, 4417, 4627, 4789, 4811, 4931, 4966, 5083.

Predators: 1434, 2984, 3270, 3815, 3905, 4084, 4770, 4771, 4773, 4776, 4778, 4781, 4789, 4811, 4966.

Pathogens: 1104, 1105, 1107, 2346, 3156, 4013, 4097, 4627, 4789, 5035, 5115.

BIOLOGICAL CONTROL — OTHER CROPS

1057, 1058, 1059, 1193, 1221, 2451, 2453, 2796, 5128.

Parasitoids: 1519, 2207, 2387, 2633, 2635, 2689, 2773, 3003, 3366, 3628, 3715, 3889, 4033, 4184, 4186, 4236, 4712, 4732, 4733, 4789, 4966, 5083, 5095.

Predators: 1634, 3012, 3279, 3402, 3715, 3716, 4186, 4712, 4789, 4966.

Pathogens: 924, 1222, 1223, 1511, 2346, 2357, 4184, 4789, 5064, 5084.

Chemical Control

Includes papers on the general use of insecticides, considered by three time periods. These periods roughly correspond to the pre-organo-synthetic insecticides (pre-1940); the period of main reliance on organo-synthetics (1940-1960); and the integrated pest management period (post-1960). "Insecticide Evaluation" includes insecticide trials and insecticide recommendations. "Insecticide Resistance" includes occurrence and estimation of insecticide resistance. "Growth Regulators" includes the use of hormones and hormone analogs in pest population regulation. "Insecticide Residues" includes the detection of residues in crops.

CHEMICAL CONTROL — GENERAL

Pre-1940: 63, 64, 66, 90, 111, 146, 148, 149, 152, 153, 154, 155, 156, 157, 277, 285, 292, 293, 294, 295, 323, 324, 326, 328, 329, 330, 348, 370, 391, 392, 395, 403, 442, 475, 481, 482, 483, 486, 489, 495, 524, 569, 599, 643, 645, 646, 648, 649, 650, 664, 677, 678, 680, 719, 720, 721, 722, 751, 770, 771, 774, 829, 866, 868, 870, 871, 884, 891, 906, 909, 912, 916, 926, 956, 958, 959, 960, 968, 971, 983, 991, 1016, 1017, 1018, 1019, 1020, 1021, 1041, 1045, 1046, 1060, 1061, 1073, 1077, 1078, 1100, 1112, 1114, 1127, 1128, 1129, 1160, 1167, 1168, 1170, 1171, 1172, 1174, 1175, 1176, 1177, 1192, 1202, 1204, 1242, 1245, 1247, 1248, 1249, 1250, 1252, 1262, 1263, 1265, 1296, 1297, 1298, 1317, 1319, 1325, 1344, 1351, 1355, 1391, 1392, 1431, 1435, 1438, 1467, 1505, 1522, 1534, 1572, 1586, 1587, 1606, 1613, 1615, 1616, 1626, 1628, 1658, 1699, 1701, 1704, 1720, 1738, 1746, 1747, 1748, 1781, 1807, 1813, 1814, 1934, 1959, 2021, 2081, 2082, 2092, 2095, 2132, 2133, 2134, 2135, 2183, 2184, 2216, 2250, 2258, 2271, 2274, 2275, 2278, 2279, 2281, 2282, 2296, 2308, 2312, 2313, 2314, 2316, 2319, 2320, 2325, 2380, 2385, 2386, 2475, 2498, 2499, 2504, 2514, 2516, 2600, 2601, 2619, 2668, 2669, 2670, 2693, 2696, 2747, 2759, 2857, 2858, 2867, 2876, 2879, 2880, 2881, 2882, 2901, 2922, 2923, 2929, 2937, 2939, 2955, 2956, 2957, 2958, 2959, 2960, 2962, 2973, 2976, 2977, 2978, 2979, 2981, 2982, 2983, 3001, 3025, 3026, 3027, 3030, 3031, 3032, 3037, 3039, 3040, 3041, 3042, 3043, 3072, 3099, 3100, 3107, 3125, 3130, 3133, 3134, 3135, 3137, 3143, 3144, 3159, 3168, 3169, 3207, 3221, 3222, 3223, 3229, 3230, 3231, 3232, 3233, 3237, 3238, 3239, 3241, 3244, 3249, 3250, 3251, 3254, 3267, 3268, 3285, 3314, 3315, 3333, 3336, 3338, 3339, 3354, 3358, 3386, 3400, 3419, 3445, 3500, 3501, 3502, 3503, 3505, 3508, 3512, 3513, 3514, 3548, 3552, 3554, 3555, 3571, 3572, 3573, 3611, 3614, 3615, 3628, 3674, 3678, 3699, 3708, 3709, 3712, 3713, 3769, 3785, 3786, 3787, 3788, 3798, 3831, 3833, 3834, 3842, 3845, 3846, 3847, 3848, 3849, 3850, 3906, 3907, 3908, 3938, 3943, 3954, 3974, 3976, 3979, 3980, 3981, 3983, 4046, 4047, 4051, 4064, 4084, 4085, 4086, 4088, 4105, 4106, 4108, 4110, 4111, 4142, 4174, 4175, 4188, 4189, 4192, 4216, 4218, 4223, 4224, 4227, 4228, 4229, 4298, 4303, 4304, 4319, 4327, 4373, 4441, 4442, 4443, 4445, 4462, 4463, 4487, 4491, 4492, 4517, 4640, 4646, 4675, 4719, 4765, 4770, 4771, 4772, 4773, 4774, 4775, 4776, 4777, 4778, 4792, 4815, 4820, 4823, 4871, 4873, 4890, 4891, 4892, 4894, 4932, 4942, 4943, 4945, 4946, 4961, 4962, 4965, 4966, 4991, 4992, 5011, 5012, 5065, 5066, 5067, 5068, 5069, 5087.

1940-1960: 6, 7, 17, 18, 40, 65, 83, 110, 112, 113, 115, 116, 120, 121, 158, 159, 160, 161, 162, 163, 164, 165, 167, 168, 169, 170, 171, 172, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 185, 186, 188, 189, 192, 194, 195, 196, 197, 198, 199, 237, 238, 239, 249, 250, 251, 253, 258, 272, 273, 282, 284, 286, 297, 333, 335, 336, 338, 339, 340, 341, 345, 350, 354, 361, 362, 389, 390, 396, 401, 409, 411, 441, 443, 453, 461, 484, 491, 492, 496, 498,

499, 500, 501, 502, 505, 508, 509, 511, 513, 514, 515, 516, 520, 522, 523, 526, 534, 552, 553, 554, 589, 591, 600, 601, 615, 663, 665, 666, 668, 670, 679, 727, 752, 783, 784, 788, 789, 833, 834, 835, 836, 837, 872, 873, 874, 875, 876, 897, 902, 903, 910, 911, 927, 965, 966, 977, 978, 984, 1007, 1022, 1023, 1027, 1034, 1035, 1036, 1038, 1043, 1055, 1062, 1063, 1064, 1065, 1081, 1097, 1098, 1115, 1116, 1126, 1130, 1138, 1149, 1152, 1187, 1212, 1225, 1226, 1228, 1236, 1253, 1254, 1256, 1257, 1258, 1259, 1260, 1261, 1268, 1269, 1270, 1271, 1273, 1274, 1275, 1276, 1287, 1295, 1299, 1300, 1301, 1313, 1314, 1318, 1356, 1362, 1363, 1364, 1367, 1368, 1369, 1370, 1371, 1374, 1375, 1376, 1377, 1378, 1380, 1381, 1382, 1398, 1415, 1427, 1430, 1436, 1437, 1458, 1459, 1460, 1461, 1462, 1463, 1464, 1465, 1466, 1468, 1471, 1474, 1475, 1476, 1479, 1502, 1504, 1508, 1512, 1519, 1520, 1523, 1525, 1526, 1527, 1528, 1530, 1531, 1532, 1533, 1535, 1544, 1546, 1547, 1550, 1551, 1585, 1592, 1627, 1629, 1630, 1664, 1669, 1671, 1672, 1673, 1675, 1682, 1683, 1689, 1690, 1705, 1706, 1711, 1726, 1749, 1760, 1785, 1786, 1803, 1811, 1817, 1818, 1819, 1831, 1833, 1834, 1852, 1853, 1865, 1935, 1936, 1941, 1942, 1943, 1948, 1949, 1963, 1976, 1977, 2022, 2047, 2050, 2064, 2065, 2066, 2067, 2069, 2070, 2076, 2077, 2078, 2079, 2096, 2099, 2114, 2118, 2119, 2122, 2185, 2189, 2191, 2192, 2217, 2236, 2237, 2238, 2239, 2267, 2268, 2284, 2285, 2309, 2322, 2326, 2389, 2391, 2392, 2393, 2396, 2397, 2402, 2405, 2406, 2407, 2409, 2410, 2412, 2413, 2428, 2429, 2433, 2434, 2444, 2471, 2473, 2485, 2511, 2520, 2532, 2536, 2537, 2538, 2539, 2540, 2541, 2562, 2569, 2580, 2588, 2599, 2603, 2609, 2617, 2618, 2639, 2648, 2652, 2654, 2677, 2726, 2728, 2752, 2761, 2790, 2814, 2835, 2844, 2846, 2853, 2854, 2855, 2856, 2860, 2861, 2887, 2888, 2894, 2924, 2925, 2926, 2927, 2928, 2931, 2933, 2950, 2974, 2980, 2984, 2985, 2986, 2989, 3021, 3044, 3045, 3096, 3097, 3122, 3138, 3139, 3141, 3145, 3148, 3153, 3154, 3155, 3161, 3165, 3172, 3174, 3192, 3208, 3209, 3227, 3228, 3235, 3252, 3257, 3258, 3264, 3265, 3270, 3272, 3273, 3290, 3291, 3292, 3293, 3294, 3295, 3316, 3317, 3318, 3319, 3320, 3355, 3359, 3360, 3380, 3381, 3387, 3428, 3429, 3432, 3446, 3447, 3448, 3449, 3451, 3499, 3504, 3506, 3507, 3534, 3535, 3536, 3537, 3538, 3539, 3542, 3543, 3549, 3551, 3562, 3574, 3579, 3626, 3641, 3648, 3661, 3662, 3664, 3666, 3667, 3668, 3679, 3680, 3681, 3682, 3683, 3684, 3731, 3732, 3734, 3737, 3738, 3739, 3766, 3776, 3778, 3782, 3796, 3803, 3855, 3872, 3873, 3874, 3879, 3892, 3893, 3895, 3909, 3911, 3913, 3914, 3915, 3916, 3917, 3919, 3921, 3929, 3945, 3949, 3951, 3953, 3956, 3967, 3985, 3991, 4006, 4083, 4104, 4107, 4109, 4112, 4113, 4132, 4159, 4162, 4163, 4165, 4166, 4167, 4190, 4205, 4210, 4230, 4250, 4263, 4305, 4306, 4307, 4316, 4317, 4338, 4347, 4348, 4365, 4368, 4388, 4400, 4421, 4424, 4431, 4438, 4439, 4440, 4453, 4456, 4464, 4465, 4466, 4467, 4475, 4482, 4483, 4493, 4494, 4524, 4525, 4526, 4560, 4561, 4563, 4564, 4565, 4566, 4567, 4568, 4569, 4570, 4571, 4572, 4573, 4574, 4575, 4576, 4577, 4578, 4579, 4580, 4581, 4582, 4583, 4584, 4585, 4586, 4587, 4589, 4590, 4591, 4592, 4593, 4594, 4638, 4641, 4651, 4658, 4705, 4738, 4741, 4748, 4751, 4752, 4753, 4780, 4781, 4793, 4821, 4831, 4833, 4835, 4837, 4839, 4840, 4841, 4842, 4843, 4844, 4845, 4851, 4852, 4853, 4854, 4855, 4858, 4870, 4876, 4877, 4878, 4879, 4880, 4917, 4918, 4921, 4927, 4928, 4931, 4936, 4940, 4947, 4948, 4950, 4951, 4952, 4955, 4975, 4976, 4978, 4983, 4984, 4985, 5070, 5072, 5076, 5088, 5134.

Post-1960: 4, 5, 19, 26, 62, 74, 82, 84, 91, 93, 97, 102, 103, 104, 105, 106, 114, 118, 119, 122, 201, 202, 203, 204, 206, 209, 213, 215, 216, 217, 228, 234, 235, 242, 275, 281, 310, 347, 349, 352, 353, 357, 363, 364, 373, 393, 399, 407, 457, 468, 504, 528,

537, 542, 544, 546, 564, 565, 571, 574, 575, 576, 579, 581, 583, 590, 593, 611, 612, 641, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 711, 713, 718, 851, 860, 893, 894, 895, 898, 944, 945, 967, 980, 981, 999, 1003, 1026, 1033, 1049, 1102, 1108, 1118, 1119, 1139, 1140, 1146, 1153, 1161, 1191, 1193, 1194, 1195, 1219, 1221, 1285, 1286, 1294, 1308, 1311, 1312, 1337, 1386, 1399, 1404, 1409, 1416, 1420, 1422, 1442, 1446, 1454, 1455, 1490, 1496, 1498, 1499, 1500, 1501, 1518, 1536, 1579, 1614, 1654, 1693, 1722, 1724, 1733, 1761, 1765, 1796, 1864, 1906, 1926, 1927, 1958, 1968, 1975, 1985, 1987, 1988, 1997, 2010, 2016, 2017, 2032, 2033, 2034, 2036, 2042, 2044, 2052, 2060, 2063, 2071, 2072, 2073, 2074, 2174, 2181, 2193, 2195, 2200, 2201, 2202, 2229, 2249, 2287, 2371, 2379, 2381, 2384, 2400, 2427, 2430, 2445, 2446, 2447, 2448, 2449, 2460, 2461, 2467, 2468, 2469, 2470, 2474, 2479, 2484, 2506, 2518, 2522, 2529, 2542, 2564, 2589, 2615, 2646, 2656, 2666, 2667, 2675, 2689, 2697, 2702, 2712, 2715, 2721, 2722, 2734, 2766, 2789, 2794, 2799, 2802, 2803, 2805, 2811, 2815, 2818, 2828, 2829, 2832, 2833, 2845, 2862, 2863, 2864, 2865, 2872, 2873, 2886, 2890, 2891, 2892, 2897, 2904, 2935, 2967, 2975, 2990, 2996, 3023, 3066, 3077, 3079, 3093, 3094, 3105, 3127, 3128, 3171, 3173, 3177, 3180, 3183, 3185, 3189, 3201, 3269, 3271, 3274, 3296, 3308, 3313, 3321, 3322, 3324, 3348, 3363, 3385, 3427, 3433, 3437, 3472, 3480, 3481, 3482, 3527, 3556, 3557, 3558, 3559, 3575, 3576, 3578, 3597, 3599, 3622, 3623, 3639, 3645, 3649, 3669, 3675, 3676, 3744, 3759, 3767, 3768, 3779, 3791, 3807, 3810, 3854, 3880, 3881, 3886, 3918, 3939, 3940, 3947, 3948, 3960, 3968, 3986, 3990, 3999, 4000, 4001, 4002, 4011, 4013, 4015, 4016, 4023, 4026, 4032, 4036, 4063, 4076, 4079, 4080, 4102, 4103, 4133, 4134, 4136, 4161, 4186, 4207, 4260, 4266, 4315, 4364, 4381, 4382, 4383, 4390, 4436, 4480, 4537, 4544, 4556, 4595, 4596, 4597, 4599, 4600, 4602, 4603, 4604, 4605, 4606, 4607, 4608, 4609, 4610, 4612, 4613, 4614, 4615, 4616, 4617, 4618, 4619, 4620, 4627, 4632, 4636, 4644, 4645, 4669, 4671, 4672, 4704, 4729, 4766, 4769, 4784, 4786, 4790, 4796, 4826, 4848, 4863, 4903, 4930, 4937, 4987, 4993, 4994, 5008, 5017, 5062, 5073, 5075, 5090, 5091, 5136, 5138, 5139, 5141, 5142, 5171, 5175, 5177.

Insecticide Evaluation, Pre-1940: 1659, 1660, 1661, 2221, 2222, 2223, 3146, 3224, 3225, 3920, 4155, 4716, 4872, 4933.

Insecticide Evaluation, 1940-1960: 173, 184, 243, 252, 262, 270, 283, 342, 346, 402, 405, 412, 507, 510, 517, 518, 521, 602, 603, 726, 728, 759, 760, 785, 786, 787, 820, 904, 905, 907, 1002, 1008, 1009, 1028, 1030, 1032, 1091, 1092, 1093, 1094, 1095, 1188, 1205, 1229, 1255, 1272, 1281, 1288, 1289, 1291, 1309, 1345, 1366, 1372, 1469, 1470, 1472, 1473, 1477, 1478, 1503, 1529, 1581, 1582, 1662, 1663, 1665, 1666, 1667, 1668, 1670, 1676, 1677, 1678, 1679, 1680, 1681, 1684, 1731, 1808, 1832, 1847, 1848, 1866, 1944, 1972, 1989, 1990, 1991, 1992, 1998, 2048, 2049, 2120, 2123, 2124, 2190, 2224, 2286, 2404, 2408, 2472, 2575, 2576, 2620, 2645, 2647, 2649, 2650, 2651, 2653, 2731, 2733, 2735, 2736, 2751, 2809, 2813, 2866, 2951, 2987, 2988, 2999, 3000, 3052, 3053, 3119, 3142, 3147, 3149, 3150, 3151, 3152, 3158, 3170, 3182, 3193, 3199, 3226, 3350, 3430, 3431, 3477, 3483, 3484, 3485, 3486, 3487, 3488, 3489, 3491, 3492, 3493, 3494, 3495, 3541, 3553, 3581, 3583, 3588, 3589, 3590, 3647, 3659, 3717, 3729, 3733, 3740, 3741, 3745, 3747, 3764, 3765, 3780, 3781, 3792, 3802, 3934, 3935, 3937, 3957, 3958, 3959, 3992, 4044, 4114, 4135, 4158, 4221, 4337, 4369, 4501, 4519, 4543, 4667, 4720, 4725, 4726, 4727, 4731, 4750, 4759, 4794, 4795, 4832, 4836, 4838, 4874, 4875, 4922, 4923, 4924, 4925, 4926, 4929, 4979, 4981, 5059, 5100, 5109, 5110, 5111, 5112, 5113.

Insecticide Evaluation, Post-1960: 20, 34, 35, 36, 37, 68, 92, 94, 95, 96, 98, 99, 100, 101, 107, 108, 222, 254, 255, 256, 260, 380, 398, 406, 431, 493, 494, 550, 557, 558, 566, 596, 606, 607, 642, 671, 842, 844, 850, 852, 853, 855, 942, 979, 1010, 1050, 1053, 1054, 1082, 1083, 1084, 1085, 1086, 1087, 1088, 1089, 1090, 1096, 1103, 1104, 1105, 1107, 1184, 1185, 1186, 1189, 1190, 1198, 1199, 1230, 1292, 1349, 1350, 1432, 1577, 1620, 1621, 1646, 1647, 1757, 1758, 1764, 1810, 1857, 1858, 1859, 1860, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1986, 1993, 1994, 1999, 2000, 2001, 2002, 2005, 2006, 2009, 2023, 2024, 2025, 2046, 2051, 2075, 2147, 2175, 2245, 2260, 2261, 2262, 2263, 2265, 2266, 2303, 2310, 2311, 2403, 2414, 2421, 2422, 2423, 2424, 2425, 2426, 2465, 2466, 2523, 2524, 2543, 2548, 2553, 2572, 2573, 2582, 2583, 2672, 2706, 2707, 2727, 2738, 2742, 2743, 2744, 2801, 2847, 2874, 2875, 2895, 2898, 2899, 2934, 2938, 3055, 3056, 3057, 3058, 3059, 3060, 3061, 3062, 3063, 3064, 3065, 3067, 3068, 3069, 3104, 3111, 3112, 3156, 3176, 3178, 3184, 3186, 3187, 3188, 3190, 3191, 3195, 3234, 3302, 3304, 3306, 3307, 3309, 3310, 3311, 3312, 3455, 3584, 3585, 3586, 3587, 3591, 3595, 3596, 3613, 3629, 3630, 3633, 3637, 3643, 3811, 3852, 3910, 3912, 3988, 4024, 4091, 4097, 4101, 4124, 4125, 4181, 4182, 4255, 4289, 4308, 4367, 4380, 4392, 4393, 4428, 4429, 4437, 4484, 4485, 4498, 4499, 4507, 4518, 4529, 4538, 4558, 4670, 4703, 4722, 4724, 4758, 4783, 4785, 4787, 4788, 4791, 4846, 4857, 4956, 4957, 4958, 5018, 5019, 5020, 5021, 5022, 5023, 5025, 5028, 5030, 5035, 5039, 5041, 5042, 5044, 5045, 5046, 5047, 5050, 5051, 5052, 5053, 5054, 5055, 5056, 5057, 5058, 5078, 5079, 5080, 5089, 5096, 5098, 5099, 5105, 5108, 5119, 5133, 5137, 5148, 5161, 5166, 5170.

Insecticide Resistance: 21, 22, 23, 25, 28, 34, 35, 36, 229, 287, 561, 562, 592, 594, 607, 608, 609, 610, 613, 655, 662, 712, 878, 1315, 1795, 1838, 1839, 1840, 1841, 1843, 1844, 1845, 2055, 2056, 2057, 2062, 2179, 2411, 2671, 2673, 2718, 2822, 2883, 2884, 3022, 3216, 3219, 3282, 3344, 3523, 3524, 3525, 3526, 3528, 3597, 3617, 3629, 3630, 3631, 3632, 3633, 3634, 3635, 3636, 3642, 3644, 3770, 3783, 3797, 3936, 4232, 4234, 4422, 4556, 4560, 4609, 4610, 4611, 4612, 4614, 4615, 4617, 4676, 4677, 4692, 4696, 4886, 4887, 4888, 4982, 5024, 5045, 5048, 5049, 5146.

Growth Regulators: 439, 440, 1343, 1414, 1910, 1921, 1924, 1971, 2167, 2168, 2219, 3471, 3952, 3995, 4130, 5129.

Insecticide Residues: 2029, 2042, 3643, 4437, 4643, 4822, 4931, 4933, 5039, 5052, 5053, 5056, 5061, 5080, 5098, 5099.

CHEMICAL CONTROL — CORN

Pre-1940: 90, 146, 148, 149, 152, 153, 154, 157, 294, 295, 323, 324, 326, 328, 329, 330, 403, 481, 482, 486, 489, 569, 643, 645, 646, 648, 649, 650, 719, 720, 721, 722, 771, 774, 866, 868, 870, 871, 884, 916, 960, 971, 991, 1016, 1017, 1019, 1041, 1046, 1060, 1061, 1077, 1078, 1100, 1112, 1167, 1168, 1177, 1202, 1204, 1242, 1247, 1248, 1250, 1252, 1262, 1263, 1265, 1317, 1319, 1325, 1344, 1431, 1505, 1522, 1572, 1606, 1613, 1615, 1616, 1628, 1704, 1720, 1738, 1807, 1813, 2092, 2095, 2132, 2133, 2134, 2183, 2184, 2216, 2271, 2278, 2296, 2320, 2325, 2600, 2696, 2759, 2879, 2880, 2881, 2882, 2939, 2960, 2973, 2983, 3001, 3025, 3026, 3027, 3030, 3031, 3032, 3037, 3039, 3040, 3072, 3100, 3125, 3168, 3207, 3238, 3239, 3254, 3267, 3268, 3285, 3314, 3315, 3339, 3358, 3386, 3400, 3419, 3445, 3502, 3503, 3505, 3508, 3512, 3513, 3514, 3548, 3552, 3572, 3573, 3611, 3712, 3943, 3976, 3979, 3980, 3981, 3983, 4046, 4064, 4105, 4108, 4142, 4174, 4175, 4218, 4227, 4228,

4229, 4319, 4445, 4719, 4765, 4772, 4773, 4775, 4776, 4777, 4778, 4792, 4815, 4891, 4892, 4894, 4962, 4966, 5011, 5012, 5065, 5068, 5069.

1940-1960: 6, 7, 112, 113, 115, 116, 120, 121, 158, 159, 160, 161, 162, 163, 164, 165, 167, 168, 169, 170, 175, 180, 182, 188, 192, 237, 238, 239, 272, 273, 282, 333, 335, 336, 338, 339, 340, 341, 345, 441, 453, 461, 491, 492, 496, 498, 499, 500, 501, 502, 505, 508, 509, 511, 513, 514, 515, 516, 520, 522, 523, 526, 552, 668, 670, 679, 833, 834, 835, 872, 873, 874, 875, 876, 902, 903, 965, 966, 1007, 1027, 1034, 1038, 1062, 1063, 1064, 1065, 1098, 1115, 1116, 1130, 1149, 1152, 1212, 1226, 1228, 1236, 1254, 1256, 1257, 1258, 1260, 1261, 1269, 1270, 1274, 1275, 1276, 1295, 1301, 1313, 1314, 1318, 1367, 1368, 1369, 1370, 1371, 1374, 1375, 1376, 1377, 1378, 1380, 1382, 1398, 1415, 1437, 1479, 1504, 1519, 1523, 1530, 1531, 1532, 1533, 1551, 1585, 1592, 1629, 1630, 1689, 1690, 1749, 1760, 1785, 1803, 1811, 1817, 1818, 1834, 1865, 1935, 1936, 1976, 2047, 2050, 2064, 2065, 2066, 2067, 2069, 2070, 2077, 2078, 2096, 2099, 2114, 2118, 2119, 2185, 2189, 2191, 2192, 2217, 2267, 2268, 2285, 2326, 2389, 2428, 2429, 2485, 2511, 2536, 2537, 2538, 2539, 2540, 2580, 2588, 2603, 2609, 2639, 2726, 2844, 2887, 2888, 2894, 2925, 2931, 2974, 2989, 3021, 3122, 3138, 3154, 3172, 3208, 3209, 3235, 3264, 3265, 3272, 3273, 3290, 3291, 3292, 3293, 3294, 3320, 3355, 3359, 3360, 3380, 3387, 3446, 3447, 3449, 3451, 3499, 3504, 3534, 3535, 3543, 3549, 3562, 3574, 3579, 3648, 3664, 3666, 3667, 3668, 3684, 3731, 3766, 3796, 3803, 3855, 3879, 3892, 3893, 3895, 3909, 3911, 3916, 3917, 3929, 3945, 3949, 3951, 3953, 3956, 3967, 3985, 4006, 4104, 4107, 4109, 4132, 4205, 4230, 4250, 4263, 4307, 4316, 4317, 4388, 4438, 4439, 4440, 4456, 4482, 4563, 4565, 4566, 4567, 4574, 4575, 4580, 4581, 4586, 4590, 4641, 4705, 4738, 4741, 4748, 4751, 4780, 4781, 4831, 4833, 4835, 4837, 4839, 4840, 4841, 4843, 4844, 4845, 4854, 4855, 4877, 4878, 4879, 4880, 4917, 4918, 4940, 4975, 4976, 4978, 4983, 4984, 4985, 5072, 5076.

Post-1960: 62, 84, 114, 118, 119, 202, 203, 206, 216, 242, 357, 393, 457, 504, 528, 571, 574, 575, 860, 999, 1102, 1108, 1118, 1119, 1139, 1140, 1193, 1285, 1286, 1308, 1311, 1312, 1501, 1733, 1968, 2016, 2017, 2032, 2033, 2036, 2042, 2044, 2052, 2071, 2072, 2073, 2074, 2229, 2379, 2427, 2430, 2461, 2467, 2468, 2469, 2474, 2518, 2542, 2615, 2675, 2689, 2715, 2734, 2845, 2863, 2864, 2865, 2890, 2891, 2967, 2990, 3023, 3093, 3094, 3105, 3127, 3128, 3201, 3427, 3433, 3649, 3669, 3759, 3767, 3768, 3948, 3986, 4001, 4026, 4136, 4260, 4266, 4315, 4364, 4604, 4606, 4619, 4671, 4766, 4826, 4903, 4987, 4994, 5008, 5017, 5073, 5075, 5090, 5091, 5175.

Insecticide Evaluation: 68, 173, 243, 260, 283, 342, 346, 380, 402, 507, 510, 517, 518, 521, 759, 760, 1009, 1028, 1030, 1230, 1255, 1309, 1366, 1372, 1432, 1577, 1621, 1731, 1808, 1832, 1857, 1858, 1859, 1860, 1866, 2048, 2049, 2051, 2075, 2120, 2123, 2124, 2190, 2286, 2421, 2422, 2423, 2424, 2425, 2426, 2523, 2543, 2548, 2582, 2583, 2645, 2650, 2653, 2672, 2731, 2733, 2735, 2736, 2866, 2874, 2875, 2895, 3541, 3553, 3647, 3659, 3729, 3764, 3765, 3802, 3934, 3957, 3958, 3959, 4044, 4101, 4124, 4308, 4380, 4393, 4485, 4667, 4716, 4758, 4759, 4836, 4838, 4922, 4979, 4981, 5058, 5089, 5098, 5099, 5105, 5108, 5170.

CHEMICAL CONTROL — COTTON

Pre-1940: 111, 370, 481, 482, 483, 486, 495, 664, 751, 891, 968, 1073, 1127, 1128, 1129, 1160, 1204, 1245, 1351, 1467, 1587, 1613, 1626, 1658, 1781, 1813, 1934, 2021, 2184, 2250,

2278, 2279, 2312, 2313, 2314, 2316, 2385, 2386, 2475, 2498, 2499, 2867, 2876, 2929, 2956, 2957, 2958, 2959, 2960, 3027, 3107, 3125, 3222, 3223, 3239, 3241, 3249, 3285, 3333, 3336, 3338, 3339, 3386, 3614, 3615, 3708, 3709, 3712, 3713, 3786, 3787, 3788, 3798, 3831, 3833, 3834, 3842, 3845, 3847, 3848, 3849, 3850, 3976, 3979, 3980, 3981, 4085, 4086, 4088, 4110, 4111, 4216, 4319, 4327, 4441, 4442, 4443, 4463, 4675, 4765, 4943, 4945, 4946, 4965, 4991, 4992, 5012.

1940-1960: 17, 18, 40, 110, 171, 172, 176, 178, 179, 249, 250, 253, 350, 362, 396, 401, 409, 411, 443, 553, 589, 591, 615, 663, 665, 752, 783, 784, 788, 789, 1007, 1036, 1055, 1149, 1187, 1287, 1362, 1427, 1430, 1458, 1459, 1460, 1461, 1462, 1463, 1464, 1465, 1466, 1468, 1471, 1474, 1475, 1476, 1502, 1520, 1525, 1526, 1527, 1528, 1530, 1531, 1544, 1546, 1547, 1627, 1664, 1669, 1671, 1672, 1673, 1675, 1682, 1683, 1711, 1786, 1948, 1963, 1977, 2022, 2322, 2389, 2391, 2392, 2396, 2397, 2402, 2405, 2406, 2407, 2409, 2410, 2412, 2413, 2520, 2562, 2652, 2654, 2677, 2752, 2844, 2846, 2853, 2854, 2855, 2856, 2924, 2926, 2927, 2928, 2950, 2989, 3161, 3174, 3192, 3227, 3228, 3381, 3428, 3429, 3534, 3535, 3626, 3731, 3732, 3734, 3737, 3738, 3739, 3872, 3913, 3914, 3915, 3916, 3921, 3985, 3991, 4112, 4113, 4132, 4165, 4167, 4316, 4338, 4347, 4348, 4400, 4424, 4453, 4464, 4465, 4466, 4467, 4568, 4569, 4570, 4571, 4572, 4573, 4577, 4578, 4579, 4583, 4585, 4587, 4589, 4591, 4592, 4593, 4594, 4638, 4658, 4852, 4858, 4870, 4936, 4947, 4950, 4951, 4952, 4955, 5134.

Post-1960: 4, 5, 19, 26, 74, 91, 93, 97, 102, 104, 105, 106, 204, 209, 217, 234, 235, 275, 310, 349, 363, 364, 399, 542, 546, 564, 565, 576, 590, 593, 611, 612, 641, 698, 699, 700, 704, 705, 706, 707, 708, 709, 711, 713, 851, 893, 894, 967, 980, 981, 1003, 1033, 1049, 1102, 1191, 1193, 1219, 1337, 1399, 1404, 1409, 1416, 1442, 1446, 1455, 1490, 1496, 1500, 1536, 1733, 1796, 1926, 1927, 1958, 1975, 1985, 1987, 1988, 2010, 2034, 2060, 2063, 2181, 2200, 2202, 2229, 2287, 2371, 2381, 2384, 2400, 2445, 2446, 2447, 2448, 2449, 2460, 2470, 2479, 2529, 2589, 2656, 2666, 2667, 2697, 2702, 2712, 2715, 2766, 2794, 2799, 2802, 2803, 2805, 2811, 2815, 2818, 2828, 2829, 2832, 2833, 2845, 2862, 2872, 2873, 2886, 2897, 2904, 2935, 2975, 2990, 2996, 3066, 3077, 3079, 3127, 3128, 3180, 3269, 3271, 3274, 3296, 3308, 3313, 3363, 3433, 3480, 3481, 3482, 3527, 3556, 3558, 3559, 3597, 3599, 3675, 3676, 3791, 3807, 3810, 3854, 3886, 3918, 3947, 3990, 4011, 4015, 4016, 4023, 4032, 4063, 4076, 4080, 4133, 4134, 4161, 4207, 4480, 4544, 4556, 4595, 4596, 4597, 4599, 4600, 4602, 4603, 4605, 4606, 4607, 4608, 4609, 4610, 4612, 4614, 4615, 4617, 4632, 4636, 4644, 4645, 4669, 4672, 4704, 4729, 4769, 4784, 4786, 4790, 4796, 4848, 4863, 4937, 5062, 5091, 5136, 5138, 5139, 5141, 5142, 5171, 5177.

Insecticide Evaluation: 20, 34, 35, 36, 37, 68, 92, 94, 95, 96, 98, 99, 100, 101, 184, 222, 252, 255, 270, 398, 405, 406, 412, 431, 493, 494, 550, 558, 566, 596, 606, 607, 671, 785, 786, 787, 844, 852, 853, 855, 979, 1008, 1050, 1054, 1082, 1083, 1084, 1085, 1086, 1087, 1088, 1089, 1090, 1091, 1092, 1093, 1094, 1095, 1096, 1184, 1185, 1186, 1188, 1189, 1190, 1198, 1199, 1205, 1288, 1289, 1345, 1349, 1350, 1469, 1470, 1472, 1473, 1477, 1478, 1503, 1529, 1620, 1646, 1647, 1659, 1660, 1661, 1662, 1663, 1665, 1666, 1667, 1668, 1670, 1676, 1677, 1678, 1679, 1680, 1681, 1684, 1757, 1758, 1972, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1986, 1989, 1990, 1991, 1992, 1993, 1994, 1998, 2000, 2002, 2005, 2006, 2009, 2023, 2024, 2025, 2175, 2245, 2260, 2261, 2262, 2263, 2265, 2266, 2310, 2311, 2403, 2404, 2408, 2414, 2572, 2573, 2620, 2651, 2706, 2707, 2727, 2738, 2742, 2743, 2744, 2751, 2801, 2809, 2813, 2898,

2899, 2934, 2938, 2951, 2999, 3000, 3052, 3053, 3055, 3056, 3057, 3058, 3059, 3060, 3061, 3062, 3063, 3064, 3065, 3067, 3068, 3069, 3104, 3111, 3119, 3170, 3176, 3178, 3182, 3193, 3195, 3224, 3225, 3226, 3302, 3304, 3306, 3307, 3309, 3310, 3311, 3312, 3350, 3430, 3431, 3477, 3483, 3484, 3485, 3486, 3487, 3488, 3489, 3491, 3492, 3493, 3494, 3495, 3581, 3583, 3584, 3585, 3586, 3587, 3588, 3589, 3590, 3591, 3595, 3613, 3629, 3630, 3633, 3643, 3733, 3792, 3802, 3811, 3852, 3935, 3937, 3988, 3992, 4091, 4101, 4135, 4221, 4289, 4337, 4428, 4429, 4518, 4519, 4670, 4703, 4722, 4724, 4725, 4726, 4727, 4731, 4783, 4785, 4787, 4788, 4791, 4795, 4846, 4956, 4957, 4958, 5019, 5020, 5021, 5022, 5023, 5025, 5030, 5039, 5041, 5042, 5044, 5045, 5046, 5047, 5050, 5051, 5052, 5053, 5054, 5055, 5056, 5057, 5078, 5080, 5096, 5109, 5110, 5111, 5112, 5113, 5119, 5133, 5148, 5161, 5166.

CHEMICAL CONTROL — SOYBEAN

Pre-1940: 3250, 3251, 3354, 3554.

1940-1960: 177, 181, 183, 189, 198, 199, 361, 3096, 3097, 3252, 3316, 3317, 3448, 4159, 4166, 4651, 4753.

Post-1960: 213, 352, 353, 373, 393, 407, 579, 1102, 1161, 1386, 1454, 1498, 1499, 1614, 1864, 2506, 2522, 2646, 2721, 2722, 2789, 2802, 2803, 2892, 3171, 3173, 3321, 3324, 3348, 3385, 3433, 3437, 3472, 3575, 3576, 3578, 3622, 3623, 3744, 3880, 3881, 3939, 3940, 4079, 4381, 4382, 4383, 4390, 4537, 4606, 4620, 4669.

Insecticide Evaluation: 2649, 2847, 3234, 3745, 4181, 4182, 4498, 4499, 4529, 4538, 4703, 5137.

CHEMICAL CONTROL — TOBACCO

Pre-1940: 277, 677, 678, 680, 906, 912, 1586, 1699, 1813, 1814, 1959, 2184, 2258, 2281, 2282, 2308, 2668, 2669, 2670, 2759, 2982, 3027, 3125, 3130, 3159, 3169, 3221, 3229, 3230, 3231, 3232, 3233, 3285, 3314, 3386, 3555, 3678, 3699, 3769, 3846, 3938, 3974, 3976, 3979, 3981, 4051, 4373, 4487, 4491, 4492, 4640, 4871, 4961, 4966, 5012.

1940-1960: 174, 185, 186, 194, 910, 911, 1035, 1043, 1081, 1149, 1508, 1530, 1531, 1705, 1706, 1711, 1941, 1942, 1943, 2309, 2444, 2569, 2648, 2728, 3318, 3319, 3534, 3535, 3680, 3681, 3682, 3731, 4493, 4494, 4525, 4584, 4851, 4853.

Post-1960: 82, 84, 201, 583, 944, 945, 1193, 1294, 1420, 1422, 1722, 1724, 1761, 1765, 2845, 2904, 3127, 3177, 3183, 3185, 3189, 3322, 4036, 4436, 4606, 4672.

Insecticide Evaluation: 907, 1002, 1010, 1103, 1291, 1292, 1764, 1848, 1944, 2465, 2466, 2647, 3184, 3186, 3187, 3188, 3190, 3191, 4114, 4437, 4874.

CHEMICAL CONTROL — ORNAMENTALS

Pre-1940: 442, 524, 1018, 1020, 1021, 3041, 3042, 3043, 4820, 4823.

1940-1960: 534, 1022, 1023, 1437, 1833, 2433, 2434, 3044, 3045, 4210, 4821.

Post-1960: 4102, 4103.

Insecticide Evaluation: 2553.

CHEMICAL CONTROL — VEGETABLE CROPS

Pre-1940: 154, 155, 292, 293, 348, 391, 392, 395, 403, 643, 774, 829, 916, 959, 960, 983, 1045, 1046, 1061, 1168, 1170, 1171, 1172, 1174, 1175, 1176, 1177, 1192, 1249, 1296, 1297,

1298, 1355, 1391, 1392, 1438, 1522, 1613, 1701, 1746, 1747, 1748, 2081, 2082, 2135, 2274, 2275, 2319, 2504, 2514, 2601, 2619, 2747, 2857, 2858, 2879, 2922, 2923, 2937, 2955, 2962, 2977, 2978, 2979, 2981, 2983, 3025, 3026, 3041, 3072, 3099, 3100, 3125, 3133, 3134, 3135, 3137, 3143, 3144, 3237, 3244, 3285, 3315, 3386, 3419, 3500, 3501, 3512, 3514, 3571, 3674, 3785, 3906, 3907, 3908, 3954, 4047, 4084, 4105, 4106, 4108, 4174, 4175, 4189, 4218, 4303, 4304, 4445, 4462, 4517, 4646, 4765, 4770, 4771, 4773, 4776, 4777, 4778, 4873, 4890, 4932, 4942, 4966, 5066, 5087.

1940-1960: 165, 170, 195, 196, 197, 239, 258, 354, 389, 491, 666, 836, 837, 1097, 1126, 1225, 1253, 1268, 1271, 1295, 1299, 1300, 1363, 1364, 1381, 1437, 1512, 1523, 1551, 1726, 1819, 1949, 2076, 2079, 2122, 2189, 2236, 2237, 2238, 2239, 2284, 2393, 2428, 2429, 2471, 2473, 2532, 2541, 2588, 2599, 2603, 2617, 2618, 2639, 2790, 2835, 2860, 2861, 2925, 2931, 2933, 2980, 2984, 2985, 2986, 2989, 3139, 3141, 3145, 3148, 3153, 3154, 3155, 3165, 3209, 3235, 3270, 3272, 3273, 3295, 3320, 3359, 3432, 3506, 3507, 3536, 3537, 3538, 3539, 3542, 3551, 3641, 3661, 3662, 3679, 3683, 3684, 3766, 3776, 3778, 3782, 3855, 3917, 4083, 4104, 4107, 4162, 4163, 4190, 4205, 4230, 4250, 4305, 4307, 4316, 4368, 4421, 4431, 4440, 4475, 4524, 4526, 4560, 4561, 4564, 4576, 4582, 4705, 4752, 4780, 4781, 4854, 4876, 4877, 4878, 4879, 4880, 4927, 4928, 4931, 5070, 5088.

Post-1960: 347, 468, 860, 895, 898, 999, 1026, 1108, 1146, 1654, 1733, 2174, 2484, 2789, 2935, 2990, 3127, 3557, 3639, 3767, 3768, 3779, 4013, 4606, 4616, 4627, 4826, 4930.

Insecticide Evaluation: 107, 108, 820, 842, 905, 1032, 1104, 1105, 1107, 1272, 1281, 1581, 1582, 1999, 2001, 2046, 2221, 2222, 2223, 2224, 2303, 2472, 3142, 3146, 3147, 3149, 3150, 3151, 3152, 3156, 3199, 3747, 3780, 3781, 3910, 3912, 3920, 4024, 4097, 4125, 4155, 4158, 4367, 4369, 4720, 4750, 4794, 4832, 4872, 4874, 4875, 4923, 4924, 4925, 4926, 4929, 4933, 5018, 5035, 5059, 5079, 5100, 5137.

CHEMICAL CONTROL — OTHER CROPS

Pre-1940: 63, 64, 66, 156, 475, 599, 770, 1061, 1435, 2380, 2693, 2901, 2976, 3628, 4192, 4223, 4224, 4298, 4646, 4774, 4966, 5067.

1940-1960: 65, 251, 284, 297, 390, 491, 600, 601, 727, 977, 978, 984, 1138, 1259, 1273, 1356, 1519, 1550, 1831, 1852, 1853, 2761, 2814, 3096, 3097, 3257, 3258, 3916, 3919, 4306, 4483, 4793, 4842, 4921, 4948.

Post-1960: 84, 281, 393, 544, 581, 1193, 1221, 1518, 1579, 1693, 1997, 2193, 2195, 2564, 2689, 2789, 3645, 3759, 3960, 3968, 4002, 4186, 4606, 4613, 4618, 4619, 4993.

Insecticide Evaluation: 254, 256, 262, 602, 603, 726, 728, 1229, 1810, 2147, 2524, 2575, 2576, 2987, 2988, 3112, 3158, 3234, 3455, 3717, 3740, 3741, 4255, 4393, 4484, 4485, 4507, 4543.

Plant Resistance

Includes field and laboratory screening of resistant lines and varieties, the breeding of plant resistance to the insects, the physical and chemical basis of resistance, and the genetics of resistance traits.

PLANT RESISTANCE — GENERAL

88, 109, 187, 190, 191, 208, 214, 223, 224, 226, 233, 271, 279, 280, 289, 299, 300, 347, 394, 415, 419, 432, 433, 476, 477,

506, 512, 519, 520, 536, 555, 556, 572, 573, 622, 623, 624, 625, 626, 627, 667, 669, 724, 725, 735, 793, 830, 831, 845, 879, 880, 882, 899, 901, 917, 918, 921, 970, 1004, 1122, 1135, 1136, 1137, 1156, 1157, 1159, 1196, 1213, 1217, 1218, 1236, 1238, 1263, 1265, 1276, 1302, 1304, 1307, 1310, 1312, 1340, 1341, 1357, 1358, 1359, 1360, 1361, 1379, 1398, 1410, 1414, 1432, 1536, 1538, 1539, 1540, 1541, 1542, 1553, 1608, 1612, 1629, 1687, 1688, 1704, 1727, 1750, 1751, 1752, 1759, 1762, 1763, 1766, 1778, 1797, 1829, 1846, 1855, 1856, 1861, 1863, 1945, 1946, 2028, 2053, 2054, 2060, 2098, 2102, 2103, 2104, 2111, 2177, 2178, 2231, 2232, 2235, 2270, 2299, 2388, 2395, 2438, 2439, 2440, 2481, 2482, 2483, 2508, 2509, 2511, 2522, 2524, 2525, 2536, 2542, 2555, 2577, 2584, 2585, 2586, 2587, 2629, 2638, 2665, 2713, 2715, 2723, 2724, 2732, 2737, 2740, 2753, 2754, 2760, 2786, 2804, 2812, 2816, 2817, 2825, 2834, 2869, 2888, 2896, 2902, 2903, 2905, 2906, 2907, 2908, 2909, 2911, 2912, 2913, 2914, 2915, 2916, 2917, 2918, 2919, 2920, 2921, 2952, 2973, 3016, 3017, 3018, 3019, 3021, 3024, 3029, 3034, 3035, 3076, 3082, 3083, 3084, 3087, 3088, 3089, 3091, 3092, 3093, 3101, 3117, 3118, 3131, 3143, 3408, 3409, 3410, 3411, 3412, 3413, 3418, 3445, 3450, 3452, 3456, 3457, 3458, 3459, 3460, 3461, 3462, 3463, 3464, 3465, 3475, 3476, 3509, 3559, 3562, 3598, 3606, 3611, 3638, 3649, 3650, 3651, 3652, 3653, 3654, 3655, 3656, 3712, 3793, 3801, 3884, 3984, 3993, 3996, 4003, 4012, 4015, 4017, 4018, 4019, 4020, 4021, 4062, 4065, 4066, 4067, 4068, 4069, 4070, 4071, 4072, 4073, 4075, 4076, 4082, 4115, 4116, 4122, 4143, 4151, 4161, 4225, 4226, 4251, 4264, 4265, 4277, 4278, 4294, 4309, 4312, 4313, 4314, 4315, 4344, 4360, 4361, 4362, 4375, 4376, 4377, 4378, 4379, 4419, 4455, 4470, 4474, 4535, 4536, 4563, 4574, 4580, 4598, 4636, 4660, 4710, 4717, 4719, 4721, 4723, 4728, 4738, 4739, 4740, 4741, 4742, 4743, 4744, 4745, 4746, 4749, 4751, 4754, 4755, 4756, 4757, 4813, 4814, 4841, 4843, 4849, 4898, 4899, 4901, 4902, 4904, 4905, 4906, 4909, 4910, 4911, 4912, 4913, 4914, 4915, 4916, 4949, 4971, 4972, 4973, 4974, 4987, 4994, 4995, 4997, 4998, 5000, 5001, 5002, 5003, 5004, 5005, 5006, 5007, 5016, 5027, 5081, 5082, 5090, 5091, 5108, 5126, 5127, 5138, 5139, 5140, 5153, 5160.

PLANT RESISTANCE — CORN

88, 109, 187, 190, 191, 208, 214, 223, 224, 226, 271, 279, 280, 394, 432, 433, 476, 477, 506, 519, 520, 536, 622, 623, 624, 625, 626, 627, 667, 669, 724, 793, 830, 831, 880, 899, 901, 917, 1004, 1136, 1137, 1159, 1196, 1217, 1236, 1238, 1263, 1265, 1276, 1302, 1304, 1307, 1310, 1312, 1340, 1341, 1357, 1358, 1359, 1360, 1361, 1379, 1398, 1410, 1432, 1553, 1608, 1612, 1629, 1687, 1688, 1704, 1797, 1855, 1856, 1945, 1946, 2028, 2053, 2054, 2102, 2103, 2104, 2111, 2231, 2232, 2235, 2299, 2388, 2395, 2508, 2509, 2511, 2525, 2536, 2542, 2555, 2577, 2584, 2585, 2586, 2587, 2665, 2715, 2732, 2760, 2786, 2816, 2817, 2869, 2888, 2896, 2902, 2952, 2973, 3016, 3017, 3021, 3024, 3029, 3034, 3035, 3083, 3084, 3087, 3088, 3089, 3091, 3092, 3093, 3418, 3445, 3450, 3452, 3456, 3457, 3458, 3459, 3460, 3461, 3462, 3463, 3464, 3465, 3562, 3606, 3611, 3638, 3649, 3650, 3651, 3652, 3653, 3654, 3655, 3656, 3712, 3801, 3884, 3996, 4012, 4021, 4062, 4116, 4151, 4225, 4226, 4251, 4264, 4265, 4277, 4278, 4309, 4312, 4313, 4314, 4315, 4375, 4376, 4377, 4378, 4379, 4419, 4563, 4574, 4580, 4598, 4710, 4717, 4719, 4721, 4738, 4739, 4740, 4741, 4742, 4743, 4744, 4745, 4746, 4749, 4751, 4754, 4755, 4756, 4757, 4813, 4814, 4841, 4843, 4898, 4899, 4901, 4902, 4904, 4905, 4906, 4909, 4910, 4911, 4912, 4913, 4914, 4915, 4916, 4987, 4994, 4995, 4997, 4998, 5000, 5001, 5002, 5003, 5004, 5005, 5006, 5007, 5016, 5081, 5082, 5090, 5091, 5108, 5126, 5127.

PLANT RESISTANCE — COTTON

233, 299, 300, 555, 556, 793, 918, 1135, 1156, 1157, 1218, 1536, 1750, 1751, 1752, 1759, 1778, 1846, 2060, 2177, 2178, 2388, 2395, 2438, 2439, 2440, 2481, 2482, 2483, 2638, 2713, 2715, 2723, 2724, 2737, 2740, 2804, 2812, 2825, 2902, 2903, 2905, 2906, 2907, 2908, 2909, 2911, 2912, 2913, 2914, 2915, 2916, 2917, 2918, 2919, 2920, 2921, 3016, 3017, 3018, 3019, 3076, 3117, 3118, 3131, 3408, 3409, 3410, 3411, 3412, 3457, 3465, 3509, 3559, 3598, 3712, 3793, 3984, 3993, 4015, 4017, 4018, 4019, 4020, 4062, 4065, 4066, 4067, 4068, 4069, 4070, 4071, 4072, 4073, 4075, 4076, 4082, 4122, 4143, 4161, 4278, 4294, 4360, 4361, 4362, 4470, 4598, 4636, 4660, 4723, 4728, 4813, 4849, 4949, 4971, 4972, 4973, 4974, 5027, 5091, 5138, 5139, 5140, 5160.

PLANT RESISTANCE — SOYBEAN

415, 419, 793, 879, 970, 1213, 1727, 1829, 2098, 2522, 2629, 2834, 3101, 3475, 3476, 4003, 4455, 4535, 4536.

PLANT RESISTANCE — TOBACCO

725, 921, 1762, 1763, 1766, 1861, 1863, 4062, 4065, 4115, 4344, 4474, 4813, 5153.

PLANT RESISTANCE — ORNAMENTALS

No citations retrieved.

PLANT RESISTANCE — VEGETABLE CROPS

347, 845, 1538, 1539, 1540, 1541, 1542, 3143, 3456.

PLANT RESISTANCE — OTHER CROPS

289, 735, 882, 1122, 1414, 2270, 2524, 2753, 2754, 3082, 3413.

Cultural Control

Includes special cultural control practices as well as the effect of regular cropping systems on pest populations.

CULTURAL CONTROL — GENERAL

3, 18, 64, 66, 69, 83, 86, 91, 93, 103, 104, 105, 141, 142, 143, 145, 148, 149, 150, 154, 155, 161, 162, 206, 209, 217, 219, 285, 286, 301, 303, 304, 318, 322, 337, 343, 362, 363, 364, 370, 373, 378, 381, 395, 399, 403, 442, 443, 449, 457, 464, 465, 478, 481, 482, 483, 486, 487, 491, 495, 532, 591, 641, 664, 665, 733, 771, 775, 820, 863, 870, 871, 875, 882, 890, 891, 916, 926, 927, 956, 958, 959, 960, 972, 977, 991, 1007, 1025, 1039, 1057, 1064, 1074, 1125, 1128, 1129, 1139, 1167, 1168, 1175, 1176, 1194, 1195, 1200, 1201, 1204, 1213, 1220, 1282, 1284, 1303, 1319, 1324, 1342, 1346, 1352, 1355, 1373, 1383, 1384, 1392, 1393, 1398, 1424, 1425, 1426, 1434, 1438, 1449, 1456, 1463, 1530, 1531, 1534, 1535, 1545, 1557, 1572, 1587, 1589, 1610, 1611, 1612, 1613, 1623, 1631, 1634, 1695, 1702, 1705, 1706, 1715, 1716, 1720, 1773, 1807, 1813, 1814, 1816, 1852, 1853, 1934, 2021, 2027, 2093, 2095, 2113, 2121, 2130, 2131, 2145, 2183, 2184, 2199, 2258, 2259, 2264, 2269, 2271, 2278, 2279, 2281, 2282, 2300, 2313, 2314, 2316, 2386, 2388, 2389, 2393, 2395, 2398, 2451, 2452, 2453, 2454, 2457, 2458, 2459, 2462, 2470, 2554, 2558, 2562, 2580, 2581, 2588, 2600, 2601, 2619, 2632, 2639, 2664, 2696, 2701, 2705, 2739, 2758, 2807, 2808, 2840, 2846, 2850, 2851, 2852, 2859, 2876, 2877, 2879, 2881, 2882, 2887, 2888, 2900, 2922, 2925, 2929, 2939, 2948, 2956, 2957, 2958, 2959, 2960, 2961, 2973, 2981, 2983, 2984, 3020,

3026, 3034, 3036, 3037, 3040, 3072, 3099, 3100, 3107, 3115, 3116, 3130, 3145, 3162, 3207, 3208, 3209, 3210, 3221, 3222, 3229, 3239, 3242, 3249, 3254, 3262, 3267, 3268, 3270, 3280, 3285, 3286, 3297, 3314, 3315, 3316, 3318, 3319, 3320, 3322, 3334, 3335, 3336, 3337, 3341, 3375, 3381, 3385, 3386, 3400, 3401, 3419, 3420, 3428, 3429, 3443, 3474, 3482, 3508, 3514, 3522, 3547, 3550, 3568, 3569, 3605, 3608, 3609, 3611, 3614, 3615, 3665, 3673, 3683, 3684, 3704, 3706, 3708, 3709, 3710, 3712, 3713, 3714, 3722, 3731, 3732, 3742, 3743, 3771, 3778, 3779, 3785, 3798, 3799, 3800, 3842, 3844, 3887, 3888, 3889, 3905, 3922, 3944, 3946, 3969, 3970, 3971, 3972, 3973, 3974, 3975, 3976, 3979, 3980, 3981, 3985, 4004, 4032, 4046, 4084, 4086, 4087, 4088, 4089, 4132, 4141, 4165, 4174, 4177, 4180, 4216, 4218, 4223, 4224, 4227, 4228, 4229, 4281, 4295, 4319, 4320, 4327, 4332, 4334, 4349, 4402, 4403, 4405, 4420, 4424, 4466, 4472, 4482, 4511, 4517, 4563, 4574, 4580, 4616, 4636, 4640, 4662, 4705, 4706, 4719, 4736, 4769, 4770, 4771, 4773, 4774, 4776, 4777, 4778, 4781, 4792, 4799, 4801, 4802, 4804, 4805, 4806, 4807, 4808, 4809, 4811, 4815, 4816, 4818, 4819, 4852, 4860, 4890, 4894, 4895, 4897, 4908, 4930, 4931, 4932, 4945, 4946, 4954, 4962, 4991, 4992, 4995, 5012, 5033, 5069, 5070, 5094, 5097.

CULTURAL CONTROL — CORN

18, 86, 91, 93, 104, 105, 150, 209, 217, 219, 301, 303, 304, 362, 363, 364, 370, 399, 443, 478, 481, 482, 483, 486, 495, 532, 591, 641, 664, 665, 733, 891, 1007, 1025, 1074, 1128, 1129, 1204, 1220, 1284, 1346, 1449, 1463, 1530, 1531, 1545, 1587, 1613, 1634, 1773, 1813, 1934, 2021, 2027, 2145, 2184, 2264, 2278, 2279, 2313, 2314, 2316, 2386, 2388, 2389, 2395, 2398, 2451, 2452, 2453, 2454, 2457, 2458, 2459, 2470, 2554, 2562, 2701, 2705, 2739, 2807, 2808, 2846, 2876, 2929, 2956, 2957, 2958, 2959, 2960, 2961, 3107, 3115, 3116, 3222, 3239, 3242, 3249, 3262, 3285, 3297, 3334, 3336, 3337, 3381, 3386, 3428, 3429, 3443, 3474, 3482, 3614, 3615, 3665, 3708, 3709, 3710, 3712, 3713, 3714, 3731, 3732, 3798, 3842, 3887, 3888, 3889, 3946, 3972, 3973, 3976, 3979, 3980, 3981, 3985, 4032, 4086, 4088, 4132, 4165, 4177, 4180, 4216, 4281, 4319, 4327, 4332, 4334, 4424, 4466, 4636, 4736, 4769, 4816, 4818, 4852, 4945, 4946, 4991, 4992, 5012, 5033, 5094, 5097.

CULTURAL CONTROL — COTTON

18, 86, 91, 93, 104, 105, 150, 209, 217, 219, 301, 303, 304, 362, 363, 364, 370, 399, 443, 478, 481, 482, 483, 486, 495, 532, 591, 641, 664, 665, 733, 891, 1007, 1025, 1074, 1128, 1129, 1204, 1220, 1284, 1346, 1449, 1463, 1530, 1531, 1545, 1587, 1613, 1634, 1773, 1813, 1934, 2021, 2027, 2145, 2184, 2264, 2278, 2279, 2313, 2314, 2316, 2386, 2388, 2389, 2395, 2398, 2451, 2452, 2453, 2454, 2457, 2458, 2459, 2470, 2554, 2562, 2701, 2705, 2739, 2807, 2808, 2846, 2876, 2929, 2956, 2957, 2958, 2959, 2960, 2961, 3107, 3115, 3116, 3222, 3239, 3242, 3249, 3262, 3285, 3297, 3334, 3336, 3337, 3381, 3386, 3428, 3429, 3443, 3474, 3482, 3614, 3615, 3665, 3708, 3709, 3710, 3712, 3713, 3714, 3731, 3732, 3798, 3842, 3887, 3888, 3889, 3946, 3972, 3973, 3976, 3979, 3980, 3981, 3985, 4032, 4086, 4088, 4132, 4165, 4177, 4180, 4216, 4281, 4319, 4327, 4332, 4334, 4424, 4466, 4636, 4736, 4769, 4816, 4818, 4852, 4945, 4946, 4991, 4992, 5012, 5033, 5094, 5097.

CULTURAL CONTROL — SOYBEAN

373, 1213, 2264, 3280, 3316, 3385, 3743, 3889, 4472.

CULTURAL CONTROL — TOBACCO

1530, 1531, 1623, 1705, 1706, 1813, 1814, 2184, 2258, 2281, 2282, 2558, 3130, 3221, 3229, 3285, 3314, 3318, 3319, 3322, 3386, 3714, 3722, 3731, 3974, 3976, 3979, 3981, 4640, 5012.

CULTURAL CONTROL — ORNAMENTALS

442, 487.

CULTURAL CONTROL — VEGETABLE CROPS

3, 142, 154, 155, 395, 403, 491, 820, 916, 959, 960, 972, 1168, 1175, 1176, 1352, 1355, 1392, 1434, 1438, 1613, 1631, 2121, 2393, 2588, 2601, 2619, 2639, 2758, 2859, 2879, 2922, 2925, 2981, 2983, 2984, 3026, 3072, 3099, 3100, 3145, 3209, 3210, 3270, 3285, 3315, 3320, 3335, 3341, 3375, 3386, 3419, 3514, 3550, 3673, 3683, 3684, 3704, 3706, 3714, 3771, 3778, 3779, 3785, 3905, 3969, 3975, 4084, 4141, 4174, 4177, 4180, 4218, 4517, 4616, 4705, 4706, 4736, 4770, 4771, 4773, 4776, 4777, 4778, 4781, 4799, 4801, 4806, 4811, 4860, 4890, 4930, 4931, 4932, 5070.

CULTURAL CONTROL — OTHER CROPS

64, 66, 491, 882, 977, 1057, 1634, 1852, 1853, 2451, 2453, 2705, 2840, 2859, 3335, 3341, 3742, 3889, 3944, 4223, 4224, 4332, 4774, 4954.

Mechanical Control

Includes all mechanical control methods that are not part of cultural practices.

MECHANICAL CONTROL — GENERAL

43, 52, 57, 111, 140, 167, 207, 211, 212, 387, 388, 400, 480, 752, 865, 866, 867, 868, 988, 997, 1006, 1018, 1025, 1045, 1064, 1152, 1252, 1274, 1284, 1348, 1392, 1398, 1424, 1426, 1548, 1549, 1554, 1557, 1613, 1631, 1699, 1739, 1781, 1803, 1806, 1833, 2259, 2300, 2325, 2326, 2567, 2758, 2840, 2851, 2868, 2901, 2922, 2991, 3013, 3027, 3041, 3045, 3145, 3154, 3277, 3286, 3298, 3339, 3359, 3397, 3415, 3427, 3443, 3479, 3501, 3502, 3503, 3547, 3570, 3571, 3661, 3662, 3677, 3762, 3771, 3803, 3805, 3842, 3885, 3905, 3906, 3907, 3908, 3945, 3969, 3975, 3976, 4084, 4087, 4089, 4102, 4103, 4104, 4105, 4142, 4177, 4180, 4183, 4205, 4218, 4230, 4307, 4319, 4320, 4397, 4431, 4489, 4505, 4671, 4705, 4706, 4718, 4719, 4736, 4737, 4770, 4771, 4773, 4776, 4777, 4778, 4781, 4819, 4821, 4856, 4877, 4878, 4879, 4880, 4893, 4917, 4918, 4930, 4931, 4932, 5069, 5077.

MECHANICAL CONTROL — CORN

140, 167, 865, 866, 867, 868, 988, 1064, 1152, 1252, 1274, 1398, 1424, 1426, 1554, 1557, 1613, 1631, 1803, 1806, 2259, 2300, 2325, 2326, 2840, 2851, 2868, 3027, 3154, 3286, 3339, 3359, 3397, 3415, 3427, 3502, 3503, 3547, 3677, 3771, 3803, 3945, 3976, 4087, 4089, 4104, 4105, 4142, 4177, 4180, 4205, 4218, 4230, 4307, 4319, 4320, 4397, 4489, 4671, 4705, 4718, 4719, 4736, 4737, 4773, 4776, 4777, 4778, 4781, 4819, 4877, 4878, 4879, 4880, 4893, 4917, 4918, 5069, 5077.

MECHANICAL CONTROL — COTTON

43, 52, 57, 111, 207, 212, 400, 480, 752, 1025, 1284, 1613, 1781, 2567, 2991, 3013, 3027, 3298, 3339, 3443, 3479, 3805, 3842, 3976, 4177, 4180, 4319, 4736.

MECHANICAL CONTROL — SOYBEAN

No citations retrieved.

MECHANICAL CONTROL — TOBACCO

1006, 1699, 3027, 3762, 3885, 3976, 4183.

MECHANICAL CONTROL — ORNAMENTALS

1018, 1548, 1549, 1833, 3041, 3045, 3277, 4102, 4103, 4821.

MECHANICAL CONTROL — VEGETABLE CROPS

387, 388, 997, 1045, 1348, 1392, 1554, 1613, 1631, 1739, 2758, 2922, 3041, 3145, 3154, 3359, 3501, 3570, 3571, 3661, 3662, 3771, 3905, 3906, 3907, 3908, 3969, 3975, 4084, 4104, 4105, 4177, 4180, 4205, 4218, 4230, 4307, 4431, 4505, 4705, 4706, 4736, 4770, 4771, 4773, 4776, 4777, 4778, 4781, 4877, 4878, 4879, 4880, 4930, 4931, 4932.

MECHANICAL CONTROL — OTHER CROPS

2840, 2901, 4856.

Genetic Control

Includes the use of chemosterilants and other sterilization techniques, as well as genetic manipulation by hybridization.

27, 220, 227, 232, 234, 236, 427, 428, 605, 962, 1400, 1401, 1402, 1403, 1429, 1562, 1563, 1564, 1565, 1566, 1567, 1568, 1569, 1578, 1580, 1632, 1725, 1906, 1907, 1908, 1911, 1914, 1915, 1922, 1923, 1925, 2037, 2150, 2151, 2152, 2156, 2209, 2519, 2589, 2590, 2592, 2700, 2709, 2710, 2711, 2785, 2827, 2963, 3371, 3372, 3373, 3374, 3468, 3469, 3482, 3515, 3516, 3672, 3690, 3691, 3692, 3693, 3694, 3695, 3696, 3697, 3752, 3753, 3794, 3995, 4130, 4237, 4238, 4244, 4246, 4249, 4256, 4257, 4258, 4259, 4271, 4617, 4700, 4767, 5029, 5031, 5036, 5037, 5043, 5106, 5107, 5135, 5150, 5156.

Behavioral Control

Includes the use of natural and artificial chemicals that affect normal behavioral patterns (attractants, repellants, sex pheromones, antifeedants, feeding excitants, colored and light traps, etc.).

130, 138, 207, 211, 260, 296, 371, 372, 447, 448, 488, 532, 576, 621, 811, 816, 846, 847, 877, 900, 915, 1025, 1064, 1073, 1079, 1106, 1150, 1207, 1210, 1211, 1240, 1284, 1407, 1408, 1603, 1693, 1721, 1723, 1724, 1798, 1799, 1824, 1956, 1996, 2087, 2144, 2149, 2155, 2157, 2158, 2160, 2163, 2172, 2247, 2278, 2279, 2420, 2674, 2710, 2716, 2757, 2838, 2843, 2949, 2956, 2957, 2958, 2984, 2991, 2998, 3001, 3047, 3094, 3106, 3196, 3197, 3198, 3298, 3299, 3300, 3301, 3308, 3361, 3502, 3599, 3676, 3877, 3878, 3899, 4022, 4092, 4100, 4129, 4157, 4252, 4268, 4273, 4301, 4339, 4391, 4427, 4491, 4492, 4493, 4494, 4522, 4598, 4609, 4617, 4736, 4797, 4986, 5008, 5069, 5104.

Pest Management

Includes the integration of control methods into management systems. "Economic Injury Levels," "Scouting and Sampling," and "Forecasting and Modeling" should also be searched in connection with general pest management.

PEST MANAGEMENT — GENERAL

24, 25, 26, 29, 30, 209, 217, 276, 351, 561, 562, 563, 574, 611, 747, 839, 883, 948, 1005, 1197, 1213, 1224, 1231, 1241,

1488, 1489, 1640, 1642, 1643, 1691, 1692, 1791, 1854, 1864, 1874, 2058, 2059, 2090, 2136, 2301, 2318, 2440, 2595, 2597, 2628, 2630, 2631, 2701, 2717, 2719, 2720, 2741, 2793, 2800, 2886, 3017, 3028, 3080, 3128, 3215, 3275, 3283, 3343, 3344, 3345, 3346, 3347, 3348, 3349, 3356, 3482, 3527, 3577, 3640, 3698, 3727, 3728, 3759, 3789, 3790, 3806, 3808, 3809, 3810, 3936, 3987, 4017, 4026, 4045, 4062, 4080, 4206, 4207, 4208, 4209, 4262, 4328, 4383, 4436, 4472, 4480, 4504, 4530, 4532, 4533, 4535, 4536, 4557, 4609, 4610, 4611, 4612, 4614, 4615, 4617, 4632, 4636, 4639, 4728, 4864, 4950, 4951, 4960, 5145, 5157, 5163, 5164, 5167, 5172.

PEST MANAGEMENT — CORN

29, 574, 839, 948, 2701, 3017, 3028, 3128, 3283, 3356, 3577, 3759, 4026, 4045, 4062, 4472, 4639, 4864.

PEST MANAGEMENT — COTTON

24, 25, 26, 29, 30, 209, 217, 351, 561, 562, 563, 611, 747, 883, 1005, 1197, 1224, 1231, 1241, 1488, 1489, 1640, 1643, 1692, 1791, 1874, 2058, 2059, 2136, 2301, 2440, 2595, 2701, 2719, 2741, 2793, 2800, 2886, 3017, 3080, 3128, 3215, 3275, 3343, 3344, 3345, 3346, 3347, 3482, 3527, 3698, 3789, 3790, 3806, 3808, 3809, 3810, 3936, 3987, 4017, 4062, 4080, 4206, 4207, 4208, 4209, 4262, 4328, 4480, 4504, 4557, 4609, 4610, 4611, 4612, 4614, 4615, 4617, 4632, 4636, 4639, 4728, 4864, 4950, 4951, 5145, 5163, 5164, 5167, 5172.

PEST MANAGEMENT — SOYBEAN

1213, 1864, 2628, 2630, 2631, 2720, 2793, 2800, 3275, 3348, 3349, 4383, 4472, 4530, 4532, 4533, 4535, 4536, 4864, 4960.

PEST MANAGEMENT — TOBACCO

276, 1691, 2717, 3028, 3728, 4062, 4208, 4436, 4639, 4864.

PEST MANAGEMENT — ORNAMENTALS

3640.

PEST MANAGEMENT — VEGETABLE CROPS

5157.

PEST MANAGEMENT — OTHER CROPS

1854, 3759, 4045.

Economic Injury Levels

Includes economic thresholds, damage assessment, simulated damage, and crop loss assessment. See also "Economics, Yields, Losses, Costs."

ECONOMIC INJURY LEVELS — GENERAL

31, 32, 33, 200, 525, 580, 584, 593, 694, 695, 840, 881, 1386, 1454, 1457, 1498, 1499, 1506, 1507, 1576, 1583, 1584, 1756, 1788, 1790, 1794, 1800, 1825, 1947, 1970, 2060, 2088, 2329, 2330, 2331, 2389, 2437, 2451, 2453, 2454, 2456, 2457, 2464, 2465, 2480, 2559, 2560, 2561, 2570, 2628, 2796, 2798, 2799, 2820, 2992, 3088, 3122, 3175, 3181, 3215, 3255, 3321, 3324, 3349, 3352, 3354, 3437, 3527, 3540, 3554, 3563, 3577, 3622, 3623, 3687, 3704, 3705, 3713, 3743, 3744, 3780, 3781, 3806, 3886, 3887, 3918, 3921, 3926, 4011, 4025, 4050, 4110, 4111, 4146, 4189, 4191, 4211, 4212, 4214, 4215, 4286, 4311, 4318,

4363, 4469, 4500, 4531, 4535, 4568, 4571, 4578, 4601, 4618, 4619, 4723, 4790, 4822, 4842, 4896, 4900, 4903, 4931, 4947, 4988, 4996, 5026, 5034, 5110, 5112, 5113, 5134, 5145.

ECONOMIC INJURY LEVELS — CORN

525, 881, 1583, 1584, 1970, 2330, 2331, 2389, 2453, 2454, 2457, 2992, 3088, 3122, 3577, 4025, 4191, 4311, 4601, 4619, 4896, 4900, 4903, 4996.

ECONOMIC INJURY LEVELS — COTTON

31, 32, 33, 593, 840, 1756, 1788, 1794, 1825, 1947, 2060, 2088, 2330, 2331, 2389, 2451, 2453, 2454, 2456, 2457, 2480, 2559, 2560, 2796, 2798, 2799, 2820, 2992, 3175, 3215, 3352, 3527, 3687, 3713, 3806, 3886, 3887, 3918, 3921, 4011, 4110, 4111, 4146, 4286, 4568, 4571, 4578, 4601, 4723, 4790, 4947, 4988, 5026, 5034, 5110, 5112, 5113, 5134, 5145.

ECONOMIC INJURY LEVELS — SOYBEAN

200, 1386, 1454, 1498, 1499, 1576, 2561, 2628, 2796, 3255, 3321, 3324, 3349, 3354, 3437, 3554, 3622, 3623, 3743, 3744, 3926, 4211, 4212, 4214, 4215, 4318, 4469, 4500, 4531, 4535.

ECONOMIC INJURY LEVELS — TOBACCO

1506, 1507, 2331, 2437, 2464, 2465, 3181, 3705, 4050.

ECONOMIC INJURY LEVELS — ORNAMENTALS

No citations retrieved.

ECONOMIC INJURY LEVELS — VEGETABLE CROPS

129, 1827, 3005, 3006, 3007, 3008.

ECONOMIC INJURY LEVELS — OTHER CROPS

129.

Scouting and Sampling

Includes sampling procedures for pest management purposes. For sampling methods see "Sampling and Trapping," under "Methods."

SCOUTING AND SAMPLING — GENERAL

79, 85, 218, 230, 352, 353, 529, 530, 580, 597, 756, 840, 861, 998, 1031, 1099, 1575, 1790, 1825, 1970, 2079, 2791, 2797, 2798, 2799, 2805, 2811, 3015, 3157, 3246, 3255, 3540, 3549, 3564, 3856, 3857, 3867, 3886, 3939, 3940, 4194, 4197, 4199, 4200, 4201, 4202, 4203, 4204, 4213, 4231, 4248, 4381, 4382, 4383, 4394, 4404, 4453, 4583, 4585, 4587, 4589, 4591, 4592, 4593, 4595, 4596, 4597, 4599, 4600, 4602, 4603, 4605, 4607, 4608, 4609, 4610, 4611, 4612, 4614, 4615, 4617, 4788, 4859, 4863, 4868, 4869, 4977, 4980, 5032, 5062, 5079.

SCOUTING AND SAMPLING — CORN

1031, 1099, 1970, 3549, 3564, 3856, 3857, 3867, 4194, 4868, 4977, 4980, 5032.

SCOUTING AND SAMPLING — COTTON

79, 218, 840, 998, 1825, 2791, 2797, 2798, 2799, 2805, 2811, 3015, 3886, 4231, 4394, 4453, 4583, 4585, 4587, 4589, 4591, 4592, 4593, 4595, 4596, 4597, 4599, 4600, 4602, 4603, 4605, 4607, 4608, 4609, 4610, 4611, 4612, 4614, 4615, 4617, 4788, 4859, 4863, 5062.

SCOUTING AND SAMPLING — SOYBEAN

85, 230, 352, 353, 529, 530, 597, 861, 3255, 3867, 3939, 3940, 4381, 4382, 4383, 4869.

SCOUTING AND SAMPLING — TOBACCO

1575, 3246, 3867.

SCOUTING AND SAMPLING — ORNAMENTALS

No citations retrieved.

SCOUTING AND SAMPLING — VEGETABLE CROPS

2079, 3540, 5079.

SCOUTING AND SAMPLING — OTHER CROPS

580, 3157, 4194, 4404, 4868.

Forecasting and Modeling

Includes prediction of population fluctuations and modeling as applied to pest management.

7, 193, 350, 765, 768, 1947, 2079, 2084, 2089, 2136, 3077, 3124, 3354, 3539, 4148, 4248, 4350, 5165.

Economics, Yields, Losses, Costs

Includes crop loss assessment, yields, losses, and costs of insect pest control.

200, 345, 408, 490, 501, 552, 573, 579, 883, 893, 906, 968, 1006, 1170, 1193, 1258, 1284, 1312, 1317, 1491, 1506, 1507, 1646, 1668, 1749, 1756, 1791, 1816, 1818, 1952, 1992, 2079, 2088, 2136, 2330, 2331, 2462, 2468, 2469, 2470, 2666, 2667, 2678, 2992, 3163, 3222, 3430, 3431, 3527, 3549, 3639, 3780, 4117, 4206, 4349, 4586, 4709, 4932.

Plant Diseases

Includes diseases that are associated with injury caused by the insects.

9, 288, 535, 1111, 1521, 2233, 2622, 2623, 2624, 2788, 4002, 4090, 4151, 4325, 4444, 4446, 4447, 4448, 4559, 4903, 4907, 5015.

Regulatory Entomology

Includes detection and containment of insects through quarantines.

15, 129, 1394, 1491, 1827, 2021, 3005, 3006, 3007, 3008, 3009, 3211, 4387, 4562, 4621, 4882, 4883, 4884.

